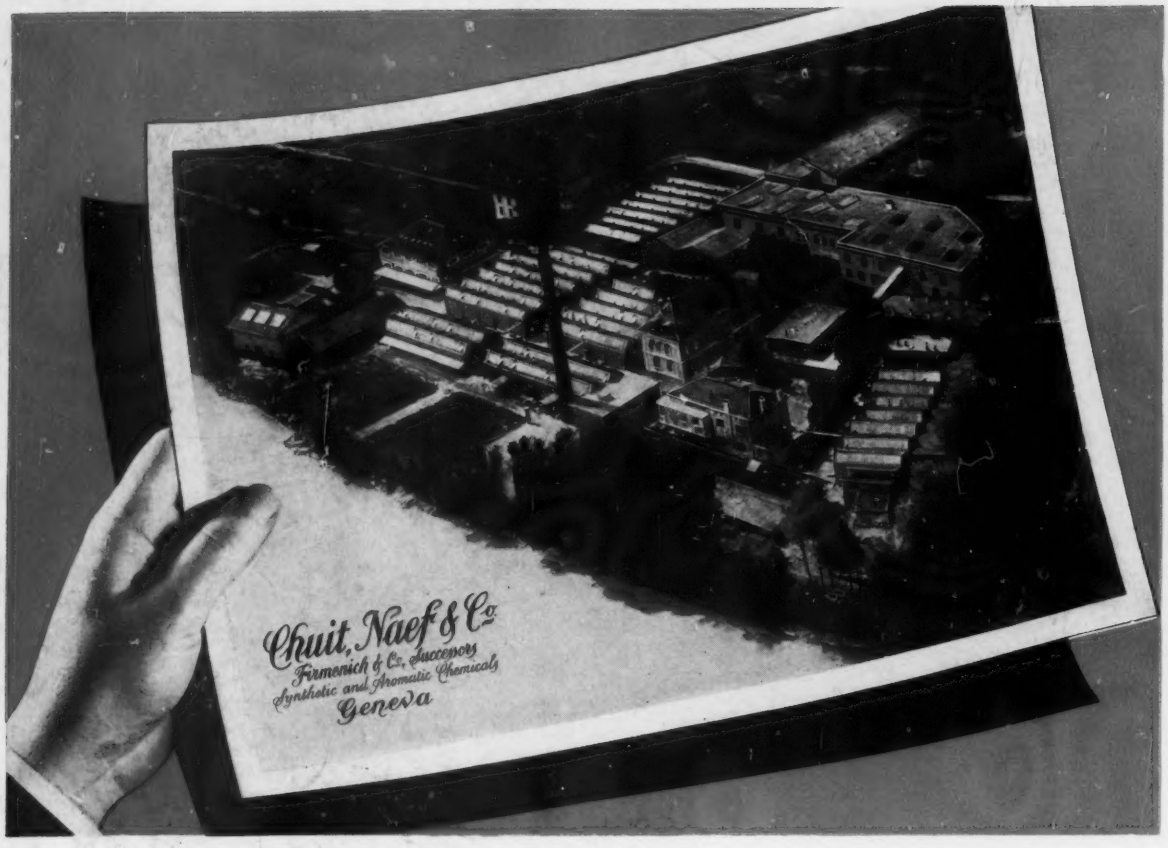
JANUARY, 1938

Soap

nd Sanitary Chemicals



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Soap and Sanitary Chemicals

Volume XIV
Number 1

JANUARY
1938

SANITARY Products Section, which forms a part of every issue of SOAP, begins on page 75.

Contents

Published monthly by

MAC NAIR-DORLAND COMPANY, INC.
254 WEST 31st STREET NEW YORK, N. Y.

Subscription rate, $3.00 per year. Foreign, including, Canadian. $4.00. Copy closing dates—22nd of month preceding month of issue for reading matter and 10th of month preceding month of issue for display advertising. Entered as second-class matter, April 11, 1931, at Post Office, New York, under act of March 3, 1879. Mail circulation, December, 1937, issue, 3,908 copies. Total distribution, 4,400.

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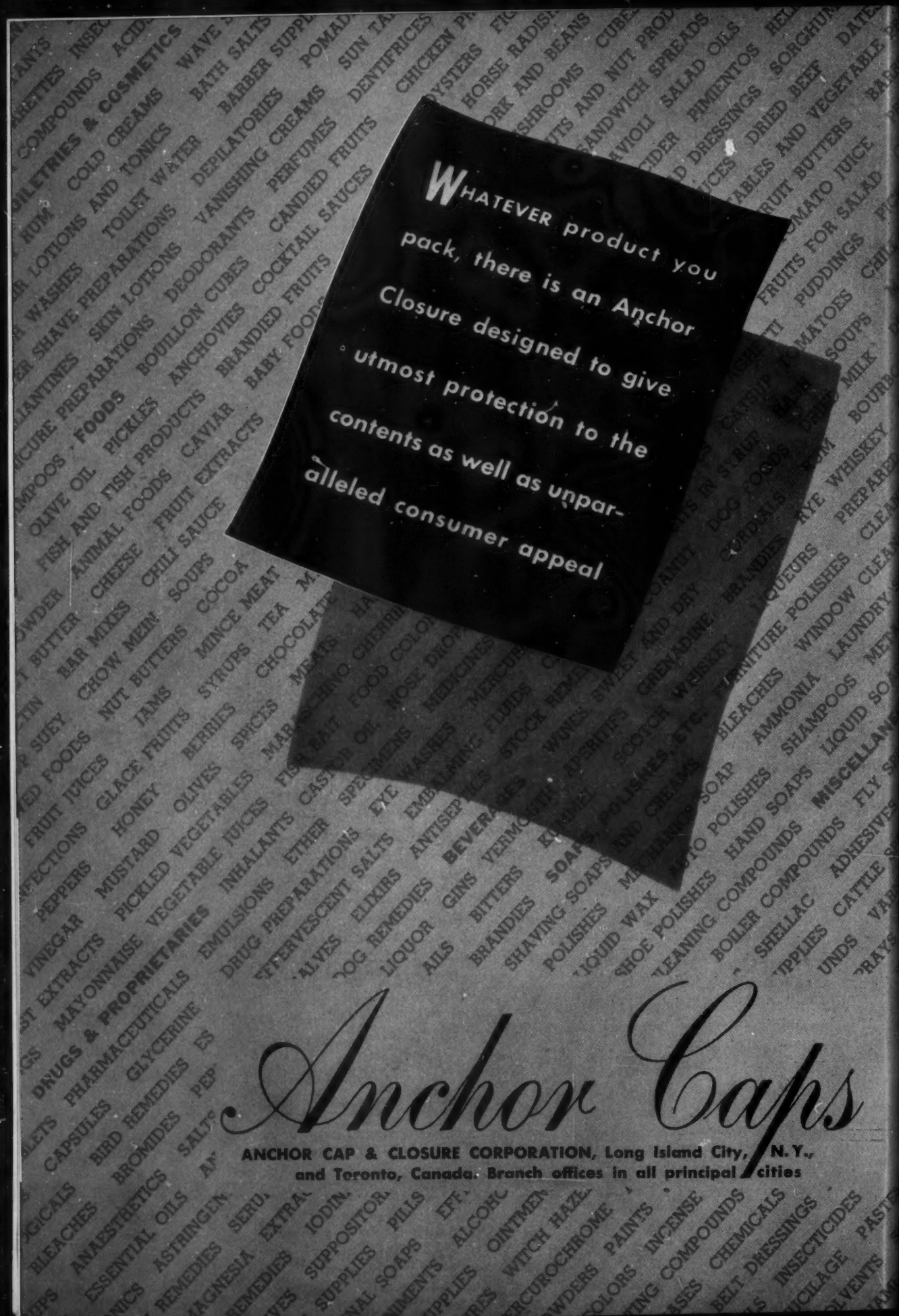
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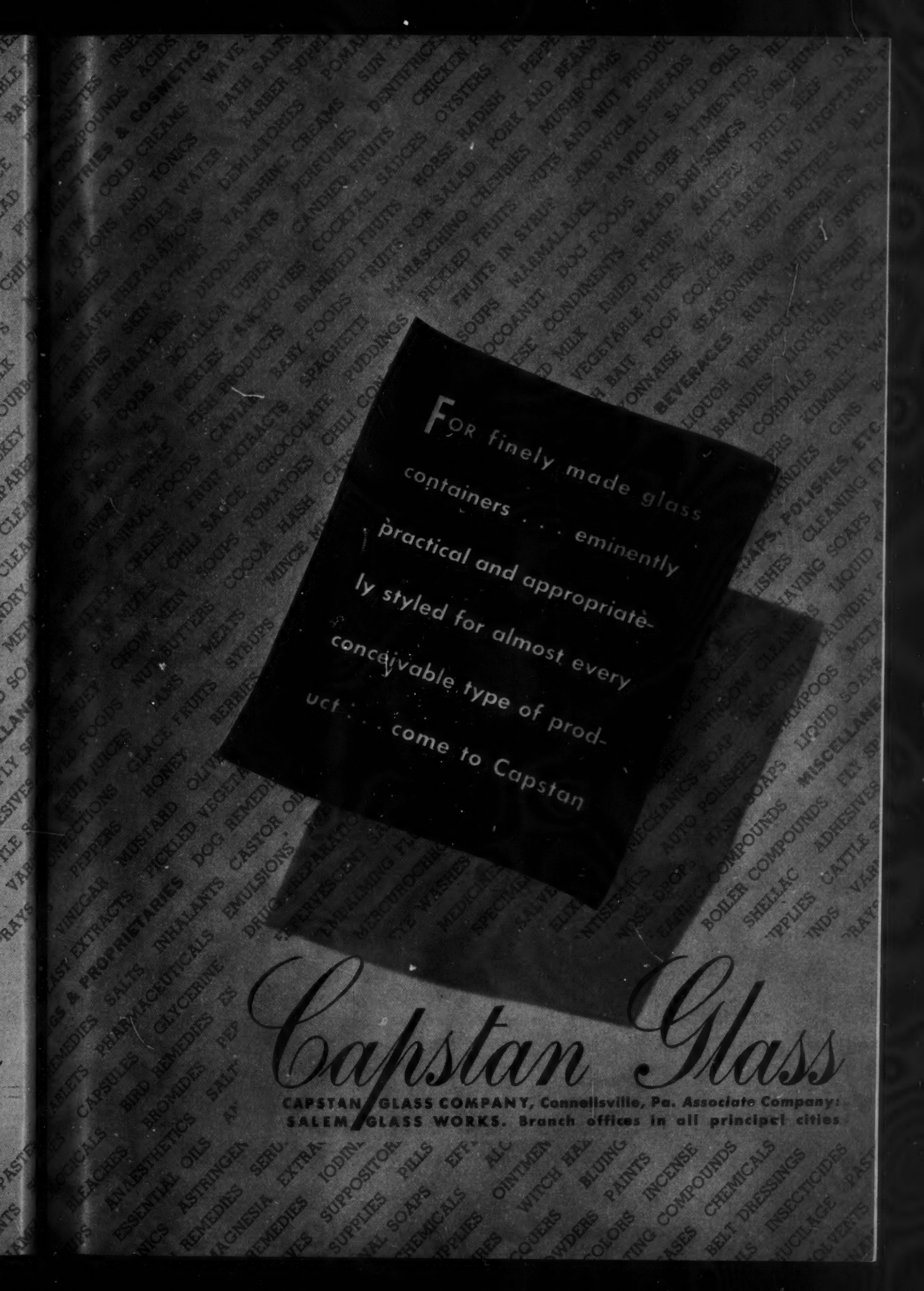
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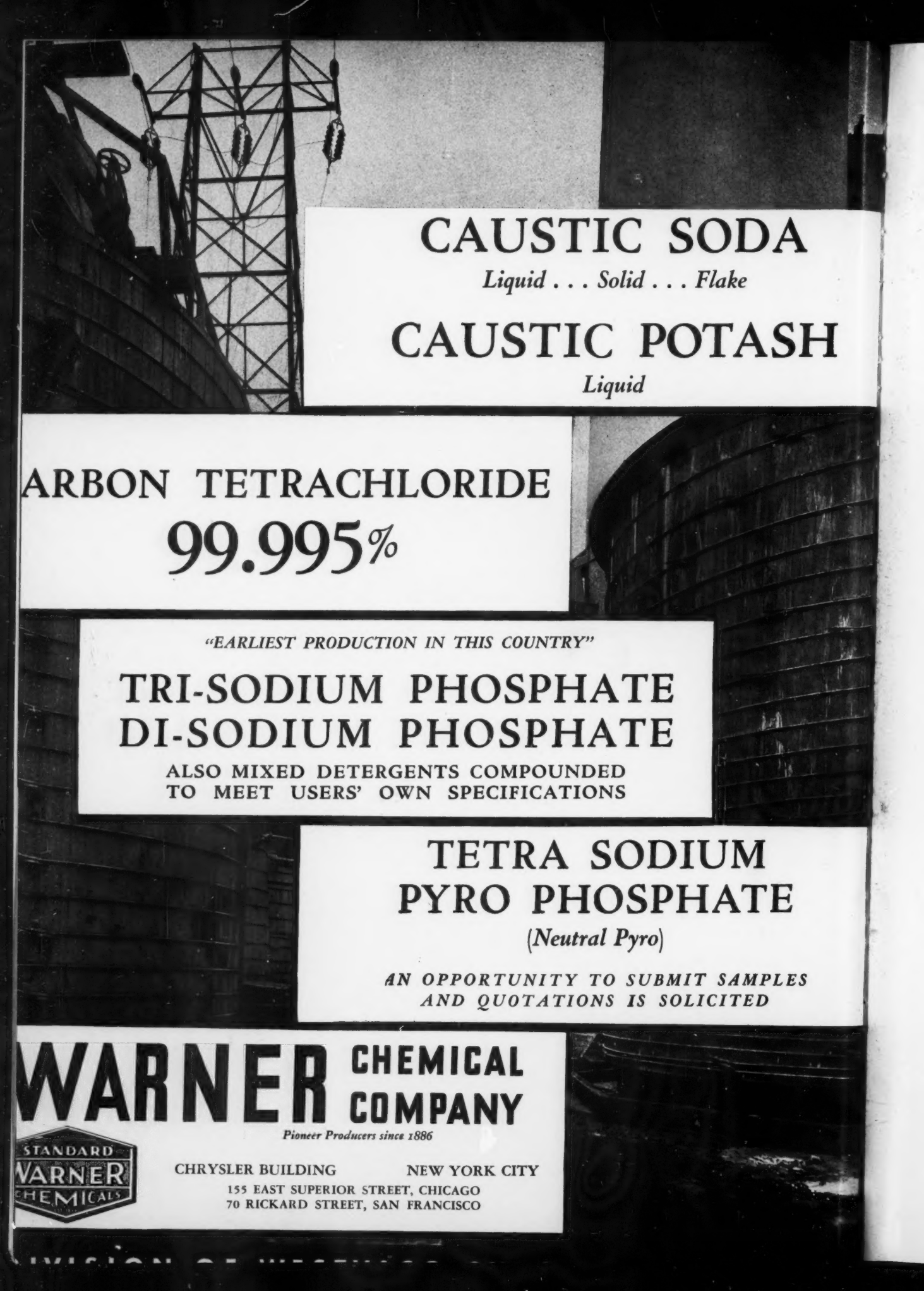

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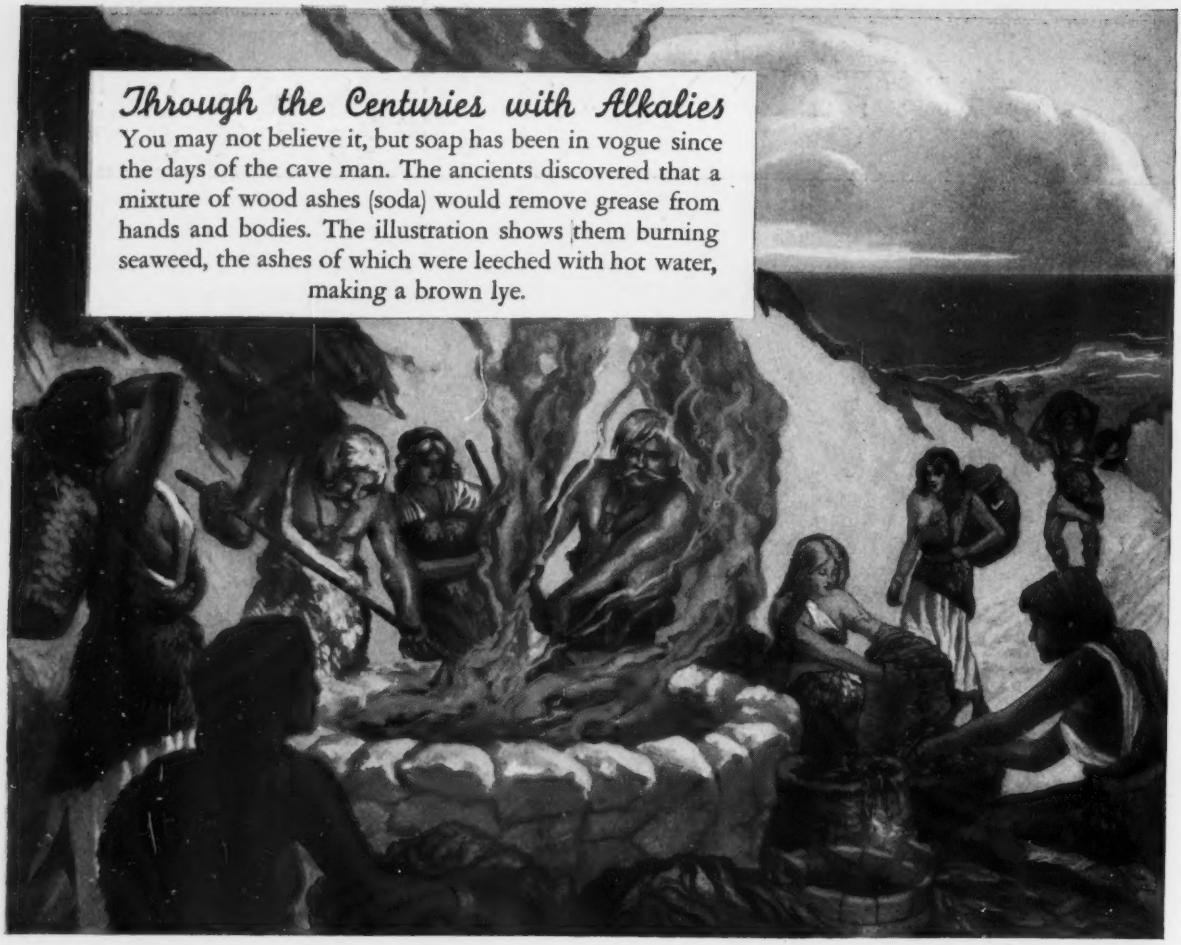

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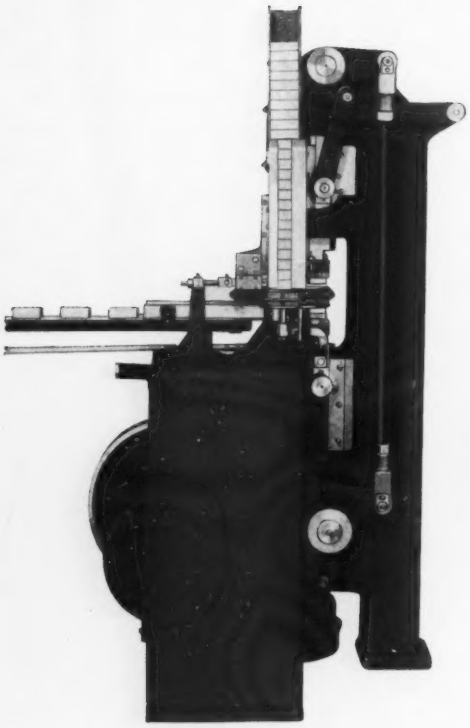

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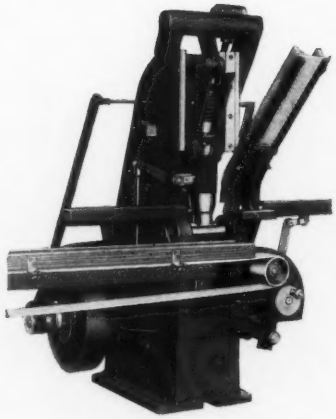

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As the Editor sees it..

A REFUND of close to two hundred thousand dollars in oil and fat excise taxes has just been made by the U. S. Treasury Department to the Armour Soap Works. These taxes were paid originally by the soap company on partially completed soaps containing oils and fats made taxable by the law which went into effect May 10, 1934. Payment was made under protest at the insistence of the Bureau of Internal Revenue. Armour then sued to recover the amounts paid. The case was finally settled by compromise outside the court, and it is the Government's appeal from the decision of the District Court that has just been dismissed.

While the constitutionality of the tax itself has, of course, been settled, other suits for the return of excise taxes are now pending, based on questions relating to treasury rulings and regulations. It is difficult as yet to draw any definite line from the Armour case, as the facts in other cases differ and various judges may look differently at even the same evidence. As a matter of fact, there is already one oil tax refund case in which the decision has gone against the taxpayer, in this case the Loose-Wiles Biscuit Co. Further appeals and possibly a trip to the Supreme Court may be necessary before the legal undergrowth of treasury regulations about this tax measure can be fully cleared away.

What then is the best procedure for other soap makers who have paid disputed taxes on oils in process when the excise tax went into effect? If their facts parallel those in the Armour case, and particularly if they are in the same judicial district, it might be well to press suits at once to avail themselves of the favorable precedent in this case. In those instances where the facts more closely resemble other cases, still undecided, it might be better policy to wait as long as possible for decisions to be handed down in the suits now being tried. There is a limitation, however, in the length of time that can elapse before initial efforts must be made to reclaim the protested taxes. Claims for refund must be made within a period of four years from the time the disputed tax was originally paid. As many companies made their first disputed payments around June or July, 1934, it is obvious that if they intend to prosecute refund claims they must take action within the next few months.

IS THE soap consumption of the United States on a definite and permanent downward trend? This interesting question was asked recently by an outstanding authority on the American soap business,—and answered by him in the affirmative. He lays the decline to a number of contributing factors, each of which is doing its part to bring about a steady shrinkage in the use of soap. More efficient soaps requiring smaller quantities for the same detergent effect, expansion in the use of synthetic non-soap detergents especially in textile processing, increasing quantities of materials washed by power laundries whose use of soap is more efficient than household use and who also replace a larger quantity of soap by alkali detergents, the widespread use of softened water, even by entire cities, cutting down sharply the wastage of soap in those communities, and also the wider use of water softening by industry,—these are chief among the technical reasons behind the declining trend in soap consumption. The higher cost of soaps as a result of taxes, excise taxes particularly, has encouraged the use of all substitutes and greater economy in soap consumption which was not the case when soap was cheaper.

This picture of the trend in the use of soap is somewhat disturbing. The reasons are logical

and the source of the facts authoritative,—reasons and facts with which most soap manufacturers have not been unfamiliar for some time past. Every factor which goes to increase soap costs,—high fat prices, increased labor costs, and the myriad of taxes borne by every pound of soap which goes to market,—is an aid in the further development and wider use of substitutes. The chief concern of the soap industry is to retain for itself the business in these soap substitutes to compensate at least in part for any decline in soap consumption which may be taking place. And with the technical complications involved in this business of soap substitutes, there is little wonder that many of the smaller soapers do not look to the future with any great degree of assurance.

BUSINESS is not completely dead yet. Testing a pulse here and a heart-beat there as we wander around the country, our latest findings bear out previous evidence,—we find that business is scared half to death. Exactly what it is scared about is difficult to see. It is something vague and intangible, something akin to the old mob psychology. Firms here, there and everywhere are running for cover apparently because they see others doing it. Manufacturers whose business is off twenty or thirty per cent from a year ago,—but still just about double the figures of 1933 and 1934,—can find no solace in the fact that they are still doing a fair amount of business. They insist upon comparing everything with the best and biggest month which they ever had, and when they do, they are immediately engulfed in a flood of sadness and self-pity.

The end of the world for American business and industry has not arrived. In fact, we do not believe it's in sight. There is still plenty of business to be had, but it is going to be a little bit harder to get. More push, more selling, more advertising are going to be needed,—and this is not going to be quite so pleasant after the past two boom years during which orders were easy to get and we all softened up. There is still going to be plenty and plenty of business to be had in 1938,—but not for the retrenchers who run to cover and "wait to see what happens" simply because they see others in flight. The tax situation, the stock market, the international political situation, the labor situation do not look so good,—but there are still over a hundred million people in the U. S. who have got to keep on eating, dressing, washing, and living,—and as long as they do, there will be just as much business as live manufacturers want to make for themselves.

THE glycerine situation has undergone a striking change in the past twelve months. Where a year ago there was a scarcity, and prices were advancing, today the situation has been reversed. Glycerine stocks are now accumulating and the current market is twelve cents under the peak prices of 1937. The present situation is probably a far more healthy one for glycerine producers as well as consumers. Too high prices for glycerine always invite use of substitutes and tend to alienate good will on the part of consumers. In the long run, the soundest position for producers obviously is to maintain ample stocks of glycerine at all times on a price basis which makes substitutes unattractive. Of course, in the case of a by-product such as glycerine where a more or less fixed production is subjected to a widely fluctuating demand, the constant maintenance of any such ideal market balance is, utterly impossible.

THE situation in soap fats, too, has reversed itself in equally startling fashion. Coconut oil is selling today at a figure substantially less than the cost of copra a year ago. Palm kernel oil is five cents and tallow, three cents, under their January, 1937, levels. There are indications at the moment, however, that the market may have reached bottom. Heavy foreign buying of copra is the usual warning sign that European buyers, at least, think the time is right for building up stocks.

Windshield and Glass Cleaners

By Dr. C. A. Tyler

INNUMERABLE products are offered for cleaning glass, household products for cleaning windows and mirrors, and commercial products for cleaning automobile windshields, windows, and headlight lenses. Similar products are even put out in small packages as eyeglass cleaners. Just why there should be so much of a market for all these products is rather a mystery, since a few simple, well-known and inexpensive materials serve the purpose admirably. For example, the commercial window-cleaner covering office buildings occasionally uses a dilute solution of trisodium phosphate. He buys the "trisodium" in crystalline form under a trade name. He may not know anything about the chemistry of alkaline salts as detergents, but he does know that if he adds a teaspoonful or a little more of this particular material to a pail of water, he has a very good window-cleaning liquid.

Similarly the housewife knows from experience, or perhaps she learned it from hearsay, that soap is not a good cleaner for washing windows, since it leaves a film that is difficult to remove by rubbing, but if she takes clear water and adds a little household ammonia, she has an efficient and satisfactory window cleaner. Also the garage worker sometimes takes a clean cloth wet with water, pours a few drops of kerosene over it, and has a fairly good means for the quick-cleaning of windshields. Apparently only the few are acquainted with these simple facts, since a market for window cleaners and windshield cleaners undoubtedly exists if we may judge by the host of new products which have come on the market during the past year.

The soil which collects on a glass surface is essentially somewhat oily or greasy, although it may not be visibly so. The oil film is sticky enough to cause specks and particles of solid matter to adhere to the glass. All of the cleaning materials used, wet glass better than water does. Soap solution does this also, of course, but the soap film left behind is objectionable in some cases, particularly on window glass where a high polish is necessary. The alkaline salts may react with greasy matter present in the soil, but acting primarily as alkaline detergents, and make excellent glass cleaners chiefly because they leave no film. An organic liquid such as alcohol has some solvent action, particularly on fatty acids, which are apt to be present to some extent in greasy soil. The kerosene type of liquid has a good solvent action on oily matter. Both kerosene and alcohol wet the soil better than water does. The primary object is to get the soil wet so that it can be softened, and then loosened from the surface of the glass by mechanical action. Organic liquids are more volatile than alkaline salt solutions, so that they require less effort to rub dry after cleaning.

There are specialized problems connected with cleaning windshield glass that do not apply so much to cleaning window glass. One great difficulty in the case of windshields is the collection of small bugs and insects that become stuck to the glass and then are more or less baked on by heat. What makes the bugs stick to the glass is the protein of their body liquid. Protein becomes denatured by the combination of drying and heat, and denatured protein is insoluble in practically everything. It cannot be washed off with soap and water, or be dissolved off with alcohol or kerosene, since it is not soluble in any of these. However, soaking with liquids softens the material so that it can be removed better by mechanical action. The most efficient method of removal is with a scouring powder, one soft enough not to scratch glass. The housewife no doubt would know more about this than the garage man, since she knows that the only way to remove egg white which has cooked on to a metal pan is to scour it off with scouring powder or steel wool. What may not be recognized is that the problem is essentially the same in both cases.

Another problem which faces the motorist is to prevent the drop formation of water during rainstorms. The very fact that drops invariably form on windshield glass, and cloud the driver's vision, is proof that an oily film is present. Windshield

wipers are the most common method of removing these drops, but chemicals are also used for the purpose. Soap rubbed on the glass will cause the water to run off in sheets instead of building up drops. Glycerine and ethylene glycol also cause water to flow off smoothly by lowering interfacial tension. These products all function by leaving a film of the material on the glass. Such a film also serves the purpose of preventing sleet or ice formation on the windshield by lowering the freezing point of the aqueous solution which is formed. The effect of course is only temporary as in a short time, they are washed away and must be renewed. In actual use, they are of very little value for this reason.

A MORE detailed study shows that windshield cleaners can be divided into groups according to their physical appearance. First there are the clear liquids. Water containing ammonia would be a useful product but is not sold under trade names for the obvious reason that its odor identifies it, so that people would buy the usual household ammonia instead and do their own diluting. Ammonia is sometimes used combined with other substances. Trisodium phosphate is the most useful alkaline cleaner. One commercial product consists of a 4 per cent solution of trisodium phosphate which has a green dye added. Any water-soluble dye can be used to color these aqueous solutions to make them more distinctive and to give them a means of identification which stands out easily in the mind of the user. Another commercial product is a simple solution of straight alkali,—a 0.35 per cent solution of caustic soda, camouflaged with a dye and scented with mirbane. Another solution contains 0.9 per cent of sodium silicate, which is colored and perfumed. Sodium silicate (ordinary waterglass) is used for this purpose, but sodium metasilicate would be better. Waterglass has a variable ratio of $Na_2O:SiO_2$ of 1:1.86 to 1:3.86, while metasilicate has the ratio of $Na_2O:SiO_2$ of 1:1, with 5, 6, 9 or 10 molecules of water of hydration. Metasilicate can be seen from the ratios to be more alkaline, which makes it the better glass cleaner.

A simple alcohol cleaner contains about 23 per cent denatured alcohol, 77 per cent water, a trace of green dyestuff and a small amount of perfume. Another product contains even less alcohol,—about 1.5 per cent, and about 1 per cent of aqua ammonia. The manufacturer recommends this product for cleaning automobile headlight lenses. One wonders whether it is worth the effort to try to sell something that is more than 97 per cent water, especially when the remaining constituents are volatile. Another product contains 35 per cent denatured alcohol, 1 per cent ethylene glycol, and a small quantity of a green dye. Still another contains about 70 per cent of denatured alcohol and a little red dye. Still another contains about 0.3 per cent of aqua ammonia, 20 per cent of alcohol, and the rest water. The amount of alcohol present in these products seems to vary all over the map.

A different type of solvent is present in one product. This con-

tains an aqueous solution of amyl acetate. Since the latter is soluble only to the extent of less than 0.2 per cent, it is probably a saturated solution. It is colored green. Amyl acetate serves as a better wetting agent than water against some types of soil, but one generally classifies it as a lacquer solvent. Probably not enough is present to have an effect on stains, so it is hard to say what the original thought may have been in developing this formula.

To continue in the organic field, it was mentioned above that kerosene makes a good window glass cleaner. One commercial product consists of kerosene with a fraction of a per cent of paraffin added. Some manufacturers of these cleaners consider that it is desirable to leave a light film of wax on the glass surface. While paraffin is not truly a wax, it is usually considered so and can be called that for the purpose of this discussion. A light wax film is supposed to give the glass a better luster, and make it shed water better. Another product contains 65 per cent kerosene and 35 per cent carbon tetrachloride. This would be particularly effective against grease, and would evaporate very quickly. Still another product contains 40 per cent of light petroleum oil, about 33°Be., and 60 per cent of a pine oil distillate. There are several pine oil fractions sold under trade names, which make very good odorants and which are lighter than pine oil. Another product is a straight mineral thinner, 47°Be., with citronella added. By mineral thinner is meant a fraction of petroleum distillate intermediate between gasoline and kerosene, having a flash point just over 100°F. and an end point of distillation a little over 400°F. These are all grease solvents and they therefore attack the basic oil film.

The method of application of these clear liquid cleaners is to apply them to the surface of the glass and then rub the glass until clean, not waiting for the liquid to dry. Some manufacturers, who face practicalities, say that several applications of the solution may be necessary, with rubbing after each application. The amount of work involved depends on the nature and quantity of soil on the glass more than on the type of cleaning liquid.

A product which is claimed to "dry-clean" glass contains 3 per cent of ethylene glycol. It is applied in the same way as the other liquid cleaners, being wiped off before it has a chance to dry. Even when wiped off with a clean cloth, a film of the material will remain on the glass and it is this film which is supposed to prevent drop and sleet formation. It is not a detergent or a grease solvent and therefore does not have the cleaning action that such products do, even though it is classified by the manufacturer as a windshield cleaner. Glycerine can be used in the same way and serves the same purpose, but can hardly be said to be a cleaner in the generally accepted sense of the word.

SOAP pastes are still sold for cleaning windows and windshield glass, both with and without abrasives. One such paste is a soap made from palm oil, saponified with a mixture of caustic potash and caustic soda. Another commercial paste product is more complicated. It contains about 2 per cent of triethanolamine oleate, 15 per cent of kerosene, 5 or 6 per cent of waxes such as carnauba wax or beeswax, 16 per cent of abrasive, and the rest water. There seems to be no good reason to use straight soap, such as the first product, for strictly cleaning purposes, since other materials make better cleaners. However, the film that it leaves will help prevent drop formation. The second product is a real cleaner. It is rubbed over the surface of the glass, allowed to dry partially, and then rubbed off. It should be very efficient, as it contains a grease solvent which would promote very quick wetting of the soil, and an abrasive which would take off the wetted soil together with solid particles of dirt and dried bugs. An abrasive is often needed to remove the latter type of soil efficiently.

One of the most widely known ammoniacal types of metal polishes is sold as a glass cleaner and is highly successful. A few years ago a competitive manufacturer broke out in a rash of advertising and put his metal polish up in smaller-sized cans, labelling these window cleaner. Metal polishes vary in composition, but one

(*Turn to Page* 127)

Underwood & Underwood

CLEANING COMPOUNDS in the Brewery

By Walter G. Holmes

WITH the advent of repeal, the breweries of the nation were reborn and, like any newborn infant, went through a period of trial and error. During this period, there were two kinds of breweries,—the strongly held family breweries that had been making malt syrup, yeast, near-beer,—or merely acquiring dust, —and also those breweries which sold considerable stock to the public. The stock selling breweries bought name rights to various venerable brews and immediately began painting sign boards asking the public to buy "Old Whoosis, Famous Since 1776", or thereabouts.

Adding to the confusion of this infant industry was a shortage of good brewmasters, and many a doddering old gentleman, who had never done anyone any harm was dragged from his easy chair to become a brewmaster once more. There were also bright young men with diplomas from the brewing schools. The product first offered the public was of various qualities, and perhaps the less said about it the better. The tonsils of John J. Public had long been case-hardened by bath-tub gin so he would not have known good beer had he tasted it.

Time passed and the confusion abated. The sheriff tacked signs on some of the breweries who sold more stock than beer and the old family breweries began to get a firm grip on their old power. The bright young men gained experience and the produce improved. Farmers being assured of a market began to grow grains of the type which produce better beer. Keg makers had time really to season the wood used in containers. Makers of steel beer drums learned how to design these so they could be handled with ease. Sales showed a steady upward trend and the business became stabilized. Now comes the brewery as a market for cleaning materials.

A dozen brewers were asked for an estimate of the cleaning materials purchased by breweries of the United States annually, and none was found rash enough to guess. However, one brewery, typical of the industry, spends $3,000 per year for cleaners and disinfectants, and produces 100,000 barrels annually. Present total production of beer in the United States is about 55,000,000 barrels. By simple arithmetic it might be concluded that the brewers spend $1,650,000 for cleaning materials (not including brushes, buckets, etc). For want of better information, this figure will be used, but it is by no means conclusive.

The amount of cleaning materials used in two breweries of equal capacity varies greatly. A brewery with glass lined steel tanks and using considerable stainless steel will naturally need less cleaning material than one whose product comes in contact with other materials. There are relatively few new breweries in the United States. When beer came back old breweries were remodelled, but all of them retained such old equipment as was still serviceable for beer storage, because this speeded production through adding to storage capacity for aging purposes. The percentage of new equipment varies with the individual success of the companies or personality of the brewmaster.

Brewers too differ widely in their ideas of the amount of materials needed to keep their places clean. Few use as much cleaning materials as they did in the "good old days" when much ice cut from nearby ponds and rivers was used for cooling. This melted, left dirt and slime behind and was one of the factors making more frequent cleaning necessary.

As contrasted with most other lines of business, even the modern brewer is still very fussy in the matter of cleanliness and operates his plant with hospital standards of sanitation. He does not do this for the benefit of visitors or a clear conscience. Stark fear is the basis of this demand for cleanliness.

Dirt in a brewery forms a breeding ground for bacteria that may contaminate beer and, though they do not boast about it, most brewmasters have at one time or another had some experience with beer contamination. This horrible word really means that unwanted bacteria have begun to multiply. From a health standpoint, this bacteria is no more dangerous than bacteria in pure buttermilk, but it does cause the brew to become bitter and unpalatable. One large brewery recently had to take back 27 carloads of such beer. After one or two experiences of this kind, a brewery management is usually glad to accept the resignation of the brewmaster. For this reason the brewmaster buys cleaners and disinfectants with fine disregard for the bills that arrive at the front office.

Underwood & Underwood

Contamination, however, is not confined solely to breweries with dirt. Bacteria may ride on the wings of the wind as does pollen which fertilizes flowers. For this reason some breweries permit only filtered air to reach certain vital parts of the plant,—air which may pass through a spray of permanganate of potash or other liquid.

Cleaning Equipment

THE brewer is likely to use more soap in his home than in his plant, for as one dryly remarked, "A little soap goes a long ways in beer." This will be better understood if the reader has poured beer into a slightly soapy glass and noticed how it instantly becomes flat. Moreover, brewers claim that soap lacks the antiseptic qualities found in other cleaning materials.

Cleaning and sterilizing starts with the care of yeast, for without pure yeast there can be no pure beer. Yeast in breweries is used over and over again, perhaps for years, as long as it remains pure. Each time it is reused it passes through pipes, tanks and other possible sources of infection, so it is necessary to keep all of these lines germ free. Most brewers send out yeast samples to laboratory services at frequent intervals for examination. A few of the larger brewers have their own laboratory equipment for making tests, but a good laboratory is expensive to equip and operate.

Fortunately yeast is a primary cleaner for the brewer and this is mixed with some abrasive material to promote a scouring action for removing hard deposits of dried beer solids called beer stone. Diameteous earth is usually used as an abrasive. After this scouring is completed, the equipment is washed and scrubbed until it is completely free from all trace of the scouring material.

Brew kettles, hop strainers, fermenting and storage tanks are scrubbed each time after use and then at intervals lined with a mixture of lime and water. This is permitted to stand overnight when it is washed off and a solution of formaldehyde applied. Lime, formaldehyde, and alkali solutions are used in cleaning the floors also. This is usually obtained from drainings previously used on equipment.

Easily removable parts such as faucets are soaked over the week-end in a solution of one gallon of formaldehyde to a barrel (about 45 gallons) of water. Steam is an ideal disinfectant, but its application is limited. One could not use steam in chilled cellars.

Chlorinated disinfectants are included among many brewery disinfectants and cleaners. Caustic soda is also used, this solution being allowed to stand in pipes overnight.

Bottle Washing Materials

ANY sizeable amount of bottle washing is done with bottle washing machines or one, two, or three alkali soaking compart-

Scrubbing out the inside of the hop strainer at the Renner Brewery at Youngstown, Ohio. Cleanliness is said to be more important than Godliness here.

♦

ments. There are rinse compartments also. The soaker compartments are given a complete fresh charge each week in some breweries. The instructions of producers differ in this regard. In addition, a daily charge is given to maintain the solution strength. This is placed in the first soaker compartment as the solution tends to work toward the rear. The amount and type of charge varies for many reasons. There is the degree and type of water hardness to be considered at any particular brewery, and no one soaking solution can be ideal for every brewery. Incidentally, the most effective way to arouse all the evil in a brewmaster's nature is to have a bright young salesman start to glorify his cleaning material without pausing to learn local water conditions.

Efficiency of the soaking process is greatly increased by raising the heat and strength of the solution. For instance, a 2 per cent solution of caustic soda at 130°F. requires 23.7 minutes for thorough sterilization of a bottle. The same 2 per cent solution at 160°F. will effect sterilization in 2.7 minutes. The temperature of solutions in the soaking compartments must be raised gradually to prevent bottle breakage.

Increasing the strength of the solution reduces the time required for sterilization far out of proportion to the increase. According to tables worked out by Dr. Max Levine and Dr. J. H. Buchanan, of the Iowa State College, the 2 per cent solution at 160°F. sterilizes in 2.7 minutes while a 4 per cent solution of the same quality will effect sterilization in 0.7 minutes.

In actual practice, the brewmaster, or bottle shop superintendent works out a formula for adding a daily charge to the soaker, puts it on a paper and gives it to his assistant. In theory he determines the stepping up charge by making a test of full strength solution and comparing it with tests after a day's run has weakened the mixture. To do this, he places 5 cc. of full strength solution into a flask, and adds 25 cc. water, plus three or four drops of

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Outside view of the bottle washing machine in the modern brewery. Cleaning materials being loaded into the soaker compartment.

methyl orange. Into this mixture he drops a normal sulfuric acid solution, using a medicine dropper and counting the drops till an "end point" is reached and the mixture turns pink. If it takes 50 drops to accomplish this and his soaker charge is 150 pounds of alkali, he divides and gets three pounds per drop. In testing his solution the second day, he may find that the "end point" is reached after 45 drops. He has lost 5 drops of strength in this case as his full strength solution required 50 drops to reach the end point. At 3 pounds per drop, he will need 15 pounds of alkali to bring back normal strength.

After the soaking and rinsing process, the brewer wants to make sure that all trace of his cleaner has vanished leaving the bottle absolutely free of alkali solution. To assure himself of this, he uses a few drops of phenolphthalein into test bottles, and no trace of pink coloration must be seen.

Barrel or keg washing not so many years ago was accomplished by placing the barrels in a huge tank and washing them by hand. A few breweries still use this method. Plants with large numbers of containers to wash use modern keg scrubbing machines which squirt water into the barrel from a number of nozzles and then whirl it around over stationary outside brushes. This turning action also gives a washing effect to the hot water inside of the barrel. When this is done an inspector sticks a small but powerful light through the bung and carefully examines the inside for dirt or breaks in the pitch lining. Pitch for relining barrels is applied at a temperature of 480 degrees, which proves most discouraging to bacteria growth.

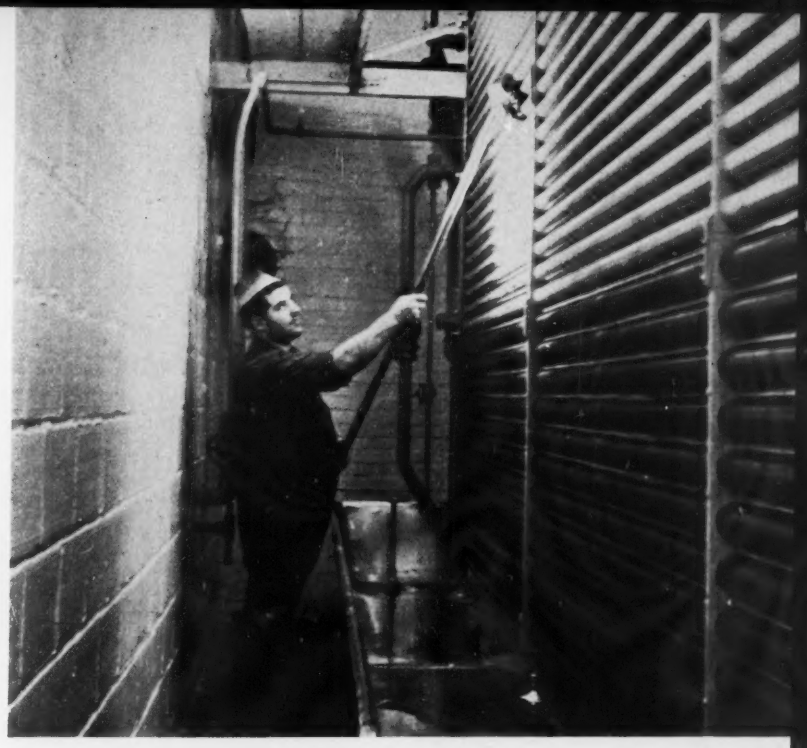
Selling to the Brewery

A LEADING brewer recently declared: "Salesmen for cleaning materials outnumber others (with the exception of malt salesmen) ten to one."

"And how do you select those with whom you are going to do business?" we inquired.

"The bulk of our business is placed with two or three salesmen," he explained. "These men are selected for just two reasons. They know what their products will do for us. They tell us these facts exactly. The brewing of beer is an exact science and brewers are exact men. If a salesman says a certain strength solution will soak off a label in four minutes, we want to see that label fall off in four minutes, not five or six."

"Inexperienced salesmen try to get business by giving a cigar, and telling us that their firm has been in business for fifty years, and they would like to have us try some of their compound as they feel we would be pleased, etc. This means nothing. We want a man who can tell us new and better ways of cleaning and speak accurately about the efficiency of his goods. We have heard already too many claims which never come true in actual plant practice."



Cleanliness is vitally important here,—the cold brine pipes over which the cooked brew flows to the fermenting tanks must be kept absolutely free of foreign germ life.

New cleansing agents are prepared by chemically combining 1 molecular weight of a soluble salt of 1 2-dihydroxy propane-3—sulfonic acid, with 1 molecular weight of a fatty acid having at least 6 carbon atoms. The Procter & Gamble Co. of Canada, Ltd. Canadian Patent No. 370,061.

◆

Higher fatty acids are purified by a continuous process involving distillation in vacuum. The impure material is heated under sufficient pressure to maintain the fatty acids in a liquid condition at a temperature which will cause their vaporization when introduced into the vacuum chamber. The vaporized fatty acids are then condensed. Proctor & Gamble Co. of Canada, Ltd. Canadian Patent No. 369,451.

◆

As a result of an attempt to clean out the foots at the bottom of an oil reservoir that had been closed for 3 months, three deaths occurred within 20-25 minutes. Experimental results indicate that the men died from the effects of oxygen deficiency and the presence of a carbon dioxide tension that far exceeded that in alveolar air. Edward J. Powers. *Am. J. Pub. Health* **27,** 880-2 (1937).

The Newer Detergents

Third of a series of articles on recent developments and patents in wetting, emulsifying and detergent agents

By Charles E. Mullin, D. Sc.

IN spite of the claims often heard for the efficiency of the new synthetic detergents, including the fatty alcohol products, increased efficiency is not present in every case and the actual comparative value of the higher fatty alcohol products, as compared with ordinary soap, varies widely between the different compounds, that is, the sulfate and sulfonate compounds of the different alcohols. In one series of experiments, the sodium cetyl sulfate and sulfonate compounds gave almost identical results as regard lowering the surface tension of their aqueous solutions, but the sulfate was a much better detergent than the sulfonate. One authority believes sodium cetyl sulfate to be approximately four times as good a detergent as the corresponding sulfonate. Another investigation indicates that, at least in some cases, a solution of the sulfate of one-half the concentration of the sulfonate has approximately the same detergent value.

In at least one series of tests, sodium cetyl sulfonate appeared to be actually less efficient as a detergent than soap, but the corresponding sulfate was about twice as efficient as the sulfonate, and considerably more effective than the soap. However, a fatty acid amide compound was even more efficient than the above sulfate.

Many statements have been made that sodium cetyl sulfate is much less effective than, for example, the corresponding lauryl compound. This statement is probably correct at some temperatures and conditions, but not all authorities agree. Some recent Japanese work indicates that at moderate temperatures, the sodium cetyl sulfate may be about as effective a detergent as the others.

Results Vary With Conditions

ABOUT the only conclusions that can be drawn from these conflicting statements is that while the corresponding sulfates and sulfonates have very similar effects as regards lowering the surface tension of their aqueous solutions, the sulfates are considerably more effective as detergents, but that the actual value of the sulfates, and probably also of the sulfonates, varies more or less widely according to the conditions under which they are tested or used.

Varied conditions alter the results of all of the tests, as well as the results obtained in practice. For example, the presence of certain inorganic salts, in at least some cases, gives an unexpected additional lowering of the surface tension of the solution, so that the purity of the alcohol product, and the impurities and other chemicals used in the bath, may considerably alter the results obtained in the plant, as well as in tests.

Then too, as with soap, the concentration of the product under test is an important factor in the results obtained. It appears that, for at least some of the fatty alcohol products, there is an optimum concentration of about 0.1 to 0.25 per cent., at 50°C. (120°F.). Of course, this optimum concentration may vary with the temperature and the particular product under examination, and it appears that the temperature itself is a very important variable in all laboratory or plant tests.

The hydrogen ion concentration (pH) of the bath or solution is also very important and recent work indicates that it is difficult to obtain accurate colorimetric pH tests on solutions containing these products. Although these products are supposed to work in alkaline, acid or neutral solutions, no one expects them to be equally effective, or even to act at all in all concentrations of acids and alkalies.

In actual fact, the higher fatty alcohol sulfates are probably more effective as cleansing agents in acid solutions than almost any of the other present-day, commercial detergents. They can be used in boiling aqueous solutions containing up to three per cent of mineral acid but are quantitatively hydrolyzed, as in analysis, by boiling seven per cent mineral acid, such as hydrochloric acid. They are also effective in solutions of considerable alkalinity, as is proven by their value in the alka-

line kier boiling of cotton goods, in certain mercerizing assistants, etc., but they are more effective in alkaline solutions than in acid solutions, and at least some of the sulfates appear to give their best detergent effect at a pH of between 9 and 10, almost the same optimum range as that for our ordinary soaps.

The higher fatty alcohol sulfates are practically neutral in solution, giving a solution of about pH 7 in distilled water. They do not split off hydroxyl ions in solution, as is the case with soap and most related products.

Substantivity

ANOTHER factor which enters into the comparative efficiency of most, if not all, detergents is their substantivity, that is, the affinity of the detergent compound for the textiles or other material being treated or washed. Based upon the modern theories of the surface action of detergents, it is not quite unexpected for these high molecular compounds to have an affinity for the material under treatment, but the variation in this affinity between different detergents, as well as between the different materials under treatment, for example, wool and cotton, is not as well understood.

It has long been known that wool will remove considerable ordinary soap from the aqueous soap solutions with which it is treated. In the same way, wool also removes some of the higher fatty alcohol sulfonates from the aqueous solution. In at least some cases, the higher fatty alcohol sulfonates have less affinity for the wool than soap, but more than the corresponding sulfate, which in turn appears to have more affinity for wool than some of the fatty acid amide detergents to be considered in a later paper. All of the products tested, soap, higher fatty alcohol sulfonates and sulfates, and the amide compound, have much less affinity for cotton than for wool. In fact, they all seem to be removed from the bath to about the same extent by cotton.

In every case, the substantive affinity of the alcohol products increases with increasing hydrogen ion concentration (acidity, or lower pH) of the bath and is greatest below about pH 3. Above about pH 5, it decreases considerably, particularly on cotton. We would expect the substantive affinity of the higher molecular compounds to be greater than that of the lower molecular compounds of the same group. On this basis the higher molecular compounds are probably more resistant to removal, washing, etc.

Obviously, if wool removes considerable of the active detergent agent from the scouring solution, the apparent efficiency of the product will depend entirely upon the activity of that part of the agent remaining in the bath. As cotton removes much less of the agent from the bath than wool, this factor alone may be sufficient to entirely alter the relative efficiencies of any given reagent, when working upon the two fibers with solutions of low concentrations. This exhausting effect is so pronounced that some investigators have reported that when working with very dilute solutions on dirty wool samples, the wool sample was less clean after a thirty minute scour than it was five minutes after entering the bath, due to the removal of the active detergent agent from the bath by the wool.

Yet this substantivity of the higher fatty alcohol products is not quite the detriment to their use in certain textile processes that it may seem. As mentioned above, both the soaps and sulfonated oils have this same affinity, and the wide use of the sulfonated oils in many textile finishing processes, as softening agents, is at least partly due to their substantive properties. It is interesting to note that the higher fatty alcohols are also excellent softeners for use in textile finishing and some tests indicate that their substantive properties very considerably retard their removal from the finished goods in subsequent wet processing, including dyeing, washing, rinsing, etc. This more or less "permanent" softening effect is particularly desirable in some cases, such as on certain rayon fabrics, where a permanent softening effect is desired. As a group, the longer chain alcohols are more widely used as softeners than the lower molecular compounds. Probably they are faster (more permanent) on the protein fibers (wool and silk) than on cotton and rayon.

All the above shows that very little dependence can be placed in general statements regarding the comparative value of any one of the new synthetic detergents, including the higher fatty alcohol products, and that each should be tested under as nearly the actual conditions of use as possible.

Stability and Textile Finishing

ANOTHER desirable feature of the higher fatty alcohol products in the finishing of textile materials is their stability. It is not necessary to dwell upon the subject of rancidity here as many readers are already too familiar with this subject. In the case of textile softeners, which are present in the finished textile materials, for example, yarns or fabrics, in comparatively small amounts, but in the form of *very* thin films spread over the tremendous surface area of the fibers, oxidation, and the development of rancidity and odor, are much more rapid than is the case with the same softening materials (oils, fats, soaps, etc.) in cake, barrel, liquid, solid, or even chip form. The presence of traces of metals, which may be present in the yarn or fabric from friction with metal parts of the manufacturing machinery, etc., considerably facilitate this change.

The development of this rancid odor in the finished goods (fabrics) on storage has long been a problem with the manufacturers of both textiles and textile finishing specialties. No one can predict just how long the finished goods may remain in the warehouse or on retailers' shelves. The stability of the higher fatty alcohols, together with their excellent softening properties, and the superior handle of many fabrics when the higher fatty alcohol prod-

ucts are properly applied, has led to a considerable demand from the textile finishing trade for special products of this type. At least some of these products seem to contain stearyl or oleyl alcohol and its compounds or derivatives. The stability of even the unsaturated oleyl alcohol is quite satisfactory for textile finishing.

Certainly this same stability is not objectionable in detergents, etc., for any use and it will probably be a factor in the adoption of the higher fatty alcohol compounds for many purposes.

Sulfation and Sulfonation

NOW that the properties of the products and the sources of the alcohols themselves have been considered, it may be desirable to add a brief word regarding the manufacture of their sulfates and sulfonates. The processes for the esterification of the alcohols are certainly not new and, in general procedure, the esterification or sulfation of the higher fatty alcohols follows these same general lines, as will be seen from a study of the patent abstracts which follow in a later installment. The process is not difficult, but does require careful attention to details, of which temperature control is particularly important. In fact, the esterification of the higher fatty alcohols with sulfuric acid appears to be much less difficult than is the case with the production of many of the more complex organic esters. The process is far simpler, and requires much less equipment, than the manufacture of many of the new synthetic wetting, emulsifying and detergent agents.

The esterification reaction is quite simple:

$$R.CH_2.OH + OHSO_3H = R.CH_2.O.SO_3H + H_2O.$$

It is believed that some of the early esterification processes used sulfuric acid with acetic anhydride, at about 100°C. (212°F.), while in another process chlorosulfonic acid was used at 30°C. (86°F.). More recently, simpler methods have come into use, as will be seen from a review of the patents covering the production of these products, which will follow here in an early issue.

Most chemists are also familiar with sulfonation processes and the sulfonation of the higher fatty alcohols, where the sulfonates are actually desired, is not difficult. In fact, one of the greatest problems in the process of esterification or sulfation, and it is usually the ester (sulfate) and not the sulfonate that is wanted, is to esterify the higher fatty alcohol as completely as possible and at the same time to avoid, as far as is possible, the formation of the sulfonate. Actually, many of the commercial products are a mixture of the free, unaltered higher fatty alcohols, their sulfates, and their sulfonates. Where the true sulfonates are desired, these can easily be obtained with fuming sulfuric acid at high temperatures.

As would be expected, the actual composition of the mixture of fatty alcohol compounds most desired for various uses varies considerably. For example, where maximum detergency is desired, it appears that one hundred per cent esterification of the alcohol is most desirable. On the other hand, where the product is to be used for textile finishing, the most desirable product will vary considerably with the specific finishing effect wanted, etc., and, in many cases, complete esterification may not give the best results. Where the textile finishing mixture contains considerable unaltered fatty alcohol, the presence of a certain amount of the sulfonate may not be objectionable, especially if it aids in bringing the unaltered alcohol into the desired state of dispersion in the finishing paste or solution. At least some of the present textile finishing mixtures are emulsions of the higher fatty alcohols with other emulsifying agents, etc. The presence of some sulfonate may also be particularly desirable where the product is to be used as a detergent in very hard water.

In most cases the equipment used in sulfating and sulfonating is that commonly used in the plant for other "sulfonation" processes, and the treated (sulfated or sulfonated) alcohol is often merely neutralized and standardized. Of course, there is a considerable variation between the products of the different manufacturers, as well as between the different batches, lots, or shipments of some plants, but the products of the better manufacturers appear to be quite uniform.

Other Alcohol Compounds

THE commercial success of the fatty alcohol products does not mean that the end of research and development along these lines is yet in sight. In fact, if anything, their success has merely turned the light of research upon all of the alcohols, natural and synthetic, simple and complex, and stimulated researchers to greater efforts in this direction than ever before. In fact, some of the discoveries since the commercial development of the higher fatty alcohol products indicates that even more valuable products may be possible.

In its broadest meaning, the word alcohols covers all organic compounds containing one or more hydroxy groups directly connected to carbon. Used in this way, it includes the phenols, aromatic alcohols, and some other compounds, such as the carboxy acids which also contain a hydroxy group directly connected to carbon. However, the carboxy compounds are never considered as alcohols. The phenols, as regards detergent chemistry, may be regarded as a separate class of alcohols, but are certainly not fatty alcohols, and will be considered later. Also, the mercapto or mercaptan compounds may be regarded as thio-alcohols, wherein the oxygen of the hydroxy group is replaced by sulfur. A great many of the more recent patents cover products, manufacturing methods, and the uses of alcohol compounds, other than those of the higher fatty alcohol group, in wetting and detergent processes.

It is quite probable that other alcohols, probably of synthetic origin, will be found that may be equally interesting for

detergent, textile finishing, or other special purposes. In fact, some of the more recent offerings of textile detergent products appear to be along this line. The interesting properties of oleyl alcohol indicate that some of the other unsaturated alcohols, either with more or less than eighteen carbon atoms may be of great interest, if available in qauntity at reasonable prices.

The saturated alcohols of the fatty type with more than eighteen carbon atoms are stated to be too insoluble for use as detergents. It would be interesting to study their use in processes operating at temperatures above the boil, as in the kier boiling of gray cotton goods, if they are not too insoluble or unstable in the caustic soda solution used. Perhaps, with their assistance, the caustic concentration could be reduced somewhat.

The thio-alcohols or mercaptans do not seem to have come into much use, but some patents have been granted along this line. The glycols are also mentioned in a number of patents and some of the products now in use are from this source. The ether-alcohols are mentioned in numerous patents.

The oxidation of petroleum hydrocarbons offers another possible source of new alcohols. The sulfonated mineral oils have many interesting properties and uses. A number of recent patents cover the production of wetting and detergent agents from mineral or petroleum oils, and it may be possible to produce detergent agents from this source by the alcohol route. The higher olefins from the cracking of petroleum oils might be hydrated to give unsaturated or other alcohols of interest.

The sugars have recently been developed as a source of alcohols, by reduction, and it is possible that by combining synthesis with reduction, someone may be able to develop detergents or wetting agents from the sugars. Quite recently products of the cellulose ester and ether type have been suggested as detergents, etc. Starches have been used in alkaline solution, but without much success.

In the pure synthesis of the lower alcohols, from carbon monoxide and hydrogen, certain higher alcohols are usually formed as by-products. By suitably altering the working conditions, these by-products may be encouraged and developed to become the main products of the reaction. It is possible that some of our present detergents and wetting agents are from this source and that others may be developed.

So many compounds of the complex alcohol type are possible that it is difficult to even guess which may be of greatest interest and value. Apparently, those containing long aliphatic chains are most promising as detergents. Aromatic groups appear to be equally interesting in wetting agents, but perhaps not as important in detergents. It has been stated that the secondary and branched chain alcohols, where the solubilizing group, such as sulfuric acid, is not attached to the end carbon atom, show little detergent action. However, even some of these secondary alcohols seem to offer interesting possibilities, particularly those with specially long carbon chains, unsaturated bonds, etc.

The development of new alcohol detergent products may not be limited to compounds consisting entirely or only of new alcohols. New methods of solubilizing may also be possible, although this appears less probable. The sulfonation process, so widely used on dyestuffs and other insoluble organic compounds, is not so old, but we have not made much progress recently in this direction. However, "like dissolves like," and more hydroxyl groups will aid the solubility of some of the higher alcohols. Could these be introduced into the higher fatty alcohols, those with more than eighteen carbon atoms in the chain? Would they increase the solubility of these alcohol sulfates? How would the added hydroxyl groups affect their detergent and textile softening properties? What would be the effect of a hydroxyl group at the double bond in oleyl or a related alcohol? Apparently, the solubilizing properties of the hydroxyl group have not been overlooked and appear to be utilized in at least some of the Peregals. Other methods are undoubtedly applicable.

The higher fatty alcohol products are not always used alone. Abroad there are a number of products on the market consisting of the alcohol sulfates, etc., with solvents, such as hexalin, methylhexalin, tetralin, etc., as well as other solvents, detergents, wetting agents, inorganic salts, cheaper colloids, etc., for special purposes. The possibilities of special mixtures of this type are almost unlimited, but are outside the scope in the present paper. Of course, the ideal mixture would contain products giving additive results, so that by using the best wetting agent, with the best emulsifier, etc., it would eventually be theoretically possible to obtain the ideal detergent. Of course, this result is unattainable with our present knowledge.

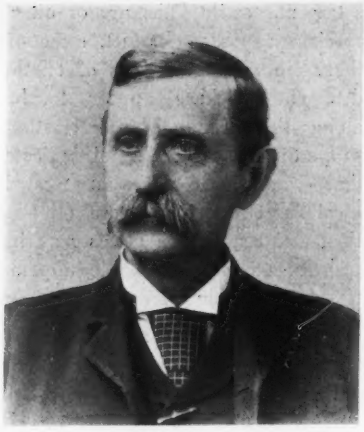
Patent Situation

AS in certain other cases concerning the wetting and detergent patents, there is a considerable difference of opinion in the trade regarding the validity of the patents covering the higher fatty alcohol products. Although there has been a great deal of interest and discussion in the textile specialty trade regarding the patent situation, nothing has as yet occurred which would tend to clarify the situation. It is possible that some manufacturers may be infringing upon some of the existing patents but, as yet, the validity of none of these patents has been proven and at least some persons consider this validity to be in doubt.

Several manufacturers of textile specialties are selling products of which a major or minor part consists of either sulfated or sulfonated higher fatty alcohols, very probably a mixture of both, as well as products containing some unaltered higher fatty alcohol. It appears that at least some of these firms are manu-

(*Turn to Page* 74)

A Hundred Years Supplying Soap Makers



P. A. Welch, the first Welch, Holme & Clark salesman to call on the soap trade.

THIS year the firm of Welch, Holme & Clark Co., oldest supply house in the country of raw materials for the soap industry, marks the 100th anniversary of its founding. The original business was established in 1838 by Oliver Loveland, on Bank Street, lower Manhattan. Welch, Holme & Clark was at first a supply house for the building trade; how it came later to serve the soap industry, and the changes in ownership and personnel involved, are interesting chapters in a story of American industry that has been a hundred years in the making.

A glance back to the year 1838 in the United States might lead one to conclude that either Oliver Loveland, the founder, was a man endowed with uncommon business foresight, or else he had an abundant faith in the future of the country. Perhaps he had both. At any rate, measured by the barometers of the day, times were not exactly bright in 1838. The panic of 1837 had played havoc with business. Merchandise was down in value thirty per cent. Real estate had depreciated, as had stocks in railroad and canal enterprises. Money was scarce. It does not appear as the most favorable time for a man to enter business, especially the building supply. Succeeding months, however, proved that few businesses were better. The United States was too rich in resources to be embarrassed long. The depression was short-lived. Towns began springing up overnight. New railroads had to be built, canals dug, mines excavated, forests cleared—it was an era of expansion, and the building trade was, of course, in the van of the upswing. As O. Loveland & Son (Leonard Loveland went in with his father), the business enjoyed a prosperous, if modest success for twenty years.

The name Welch became associated with the firm in 1858. That year a young clerk by the name of P. A. Welch, who was working for a dry goods house on lower Broadway, became dissatisfied with the limited opportunity and mediocre salary that work offered, and began looking around for something else in which to engage his lively talents. Welch was married to Oliver Loveland's daughter, so it was perhaps natural that he was offered an opening in his in-law's business. Welch joined the firm as a salesman, in 1858.

The soapmakers of that day manufactured their own caustic soda, and were therefore large consumers of lime, which they employed in causticizing soda ash. Since O. Loveland & Son supplied most of their lime, they pointed out to Welch, who sold them, the convenience to them and the advantage to him of supplying other of their raw materials. That

Early offices of the firm were located at 383 West Street. Ships coming up the Hudson docked directly opposite the old warehouse of the firm.

Elias D. Stults is the present head of the company, having occupied this post since 1923.

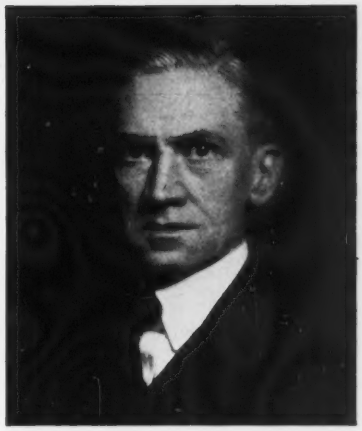
marked the beginning of the company in its present line of business.

The same year, 1858, the business was moved to larger quarters, at 383 West Street. Oliver Loveland had by this time retired and divided his share of the business between his son and son-in-law. The firm name was altered to Loveland & Welch. It is interesting to note that at the time of the change, the firm employed a young bookkeeper who was named Henry Holme.

In 1867, Leonard Loveland, also decided to retire. As a result of this, Welch, the sole remaining member, felt the need in the firm of a man who was well acquainted with local soapmakers. Welch had been raised in Dutchess County, N. Y., and had found New Yorkers somewhat clannish. He induced M. E. Clark, a native of the city, to come in with him. Clark was offered $1500 a year and 10 per cent of the business. Henry Holme, the bookkeeper, was also asked to join the firm. Holme and Clark together borrowed $50,000 from Holme's father, a retired soapmaker, and purchased Loveland's share. In this change the business was conducted under the name of P. A. Welch & Company. Three years later, in 1870, the firm name was again changed,—this time to the present title, Welch, Holme & Clark. William Holme was also added to the partnership.

There were no further changes in the organization until 1888, when A. M. Sherrill was admitted as a partner. Four years later, in 1892, A. M. Sherrill bought out P. A. Welch's interest and incorporated the firm as a New Jersey corporation. Welch, however, almost immediately set his son and brother up in business as a rival concern under the name Welch & Welch. Through his 34-year old association with the soap industry, he was able to bring to them a share of the older concern's business. In 1908, A. M. Sherrill, as president of Welch, Holme & Clark Co. saw fit to purchase the business, name and good will of Welch & Welch.

A. M. Sherrill remained president of Welch, Holme & Clark Co.



J. H. Vermilyea, vice-president and joint owner of the company with Mr. Stults.

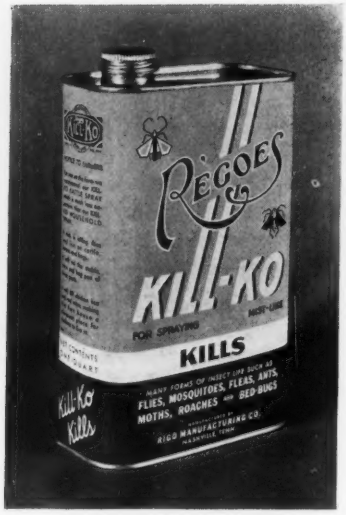
until 1925, when his son Howard was elected. The elder Mr. Sherrill survived only a few years, and died Oct. 26, 1927. Howard Sherrill died Nov. 5, 1928 and the business was reorganized and incorporated in New York state, Jan. 1, 1929. In this reorganization, M. E. Clark was elected president. He resigned, however, the same year, and the present owners, Elias D. Stults, and J. H. Vermilyea, were elected president and vice-president, respectively.

E. D. Stults has been with Welch, Holme & Clark Co. since 1898, starting in as an office boy. J. H. Vermilyea joined the firm in 1903, as an accountant. The business was moved to the present address, 563 Greenwich St., in 1925.

Present offices of the concern are located at 563 Greenwich St., New York, N. Y. in a five-story building. The move to this location was made in 1925.

New Products

These wide-base, tapered bottles for "Sohio" auto polish and furniture dressing are designed to withstand sudden jars. They are made for Standard Oil Co. of Ohio by Owens-Illinois who also make the bottle for "Sohio" fly spray.



This new container for "Regoes Kill-Ko," product of Rigo Mfg. Co., Nashville, was designed by National Can Co. Lithographed in blue and red.

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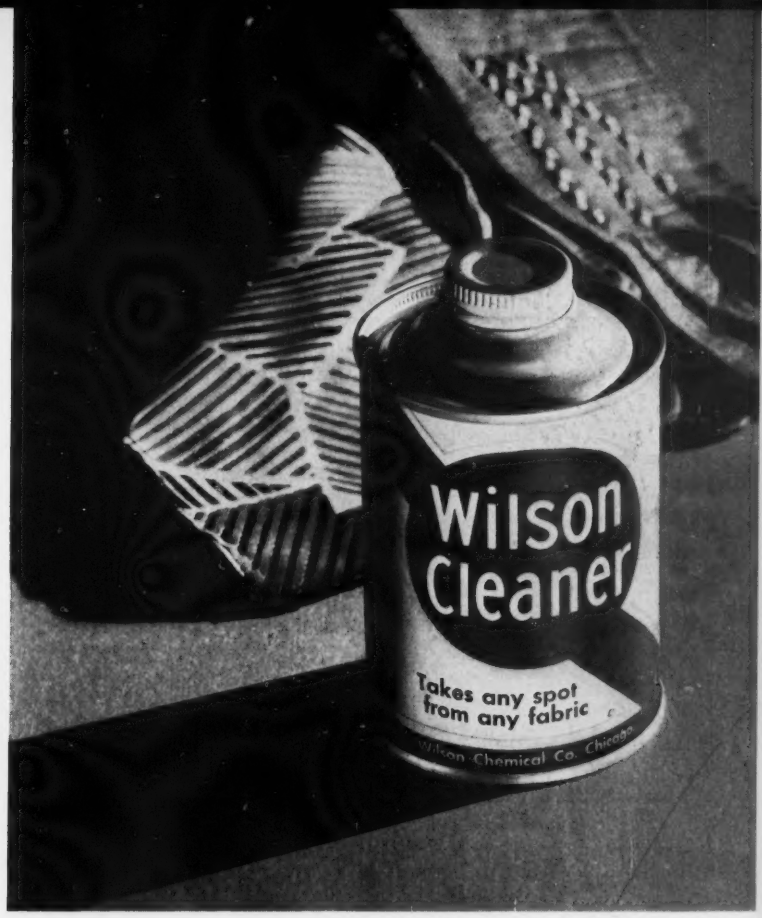
Two new additions to the Wilbert line—liquid wax and paste wax — carry out the family package idea in their adaptation of the label and general design first used for "Wilbert's No-rub" self-polishing wax, also pictured.

and

Packages



Wilson Chemical Co. has recently redesigned the container for "Wilson" cleaner,—a fabric spotter which has been on sale in the Chicago district for many years. The new container is by Giles division of Phoenix-Hermetic.

Warren Refining & Chemical Co., Cleveland, has just introduced "Warcote"—a new non-skid finish for floors.

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A new addition to the "Dwin" line of Baldwin Laboratories, Saegertown, Pa., is "Dwin White." In the new container the carton design is repeated on the bottle within, assuring display whether the carton is retained or discarded.

News....

Form New Soap Firm

A new soap company, specializing in the manufacture of fine and regular soaps has been organized at Guadalajara, Jal., Mexico, under the firm name of "La Norma, S. A." Juan Hose de la Pena is manager, and Francisco de la Pena, assistant manager.

Ticknor Joins Gillam

Arthur Ticknor, chemist, formerly with Eastman Kodak Co., New York, and a graduate of Rochester University, Rochester, N. Y., accepted a position with Gillam Soap Works, Fort Worth, Texas, on Jan. 1.

Laco Signs Stipulation

Laco products, Inc., Baltimore, has agreed, under stipulations entered into with the United States Federal Trade Commission, to stop representting that either "Laco Olive Oil," or "Laco Shampoo" feeds the scalp, or that "Laco" restores life to hair, or overcomes dry and lifeless hair, or that it is made from pure olive oil, and that "Laco Shampoo" contains only olive oil, soda and water.

Sayman Appoints Agency

Sayman Products Co., St. Louis, maker of Sayman "Wonder" soap and salve, has appointed Benson & Dall, Chicago, to direct an advertising campaign in magazines, newspapers and radio.

Churchill Joins Babbitt

Marian Churchill, formerly with Lord & Thomas at Chicago, has joined B. T. Babbitt Co., New York, as assistant director of advertising.

Chicago Assn. Elects Teller

At the annual business meeting of the Chicago Perfumery, Soap and Extract Association, Dec. 28, at the Lake Shore Drive Hotel, Chicago, W. Kedzie Teller of Columbus Laboratories was elected president for the coming year. Other officers elected were vice-president, A. A. Bafetti of La Playa Laboratories and secretary-treasurer, M. B. Vance of Givaudan-Delawanna. Mr. Teller, the new president, has long been active in the association's affairs, serving as vice-president during the past year and prior to that as secretary- treasurer for a number of years.

W. Kedzie Teller

Drug Dinner March 3rd

The 1938 banquet of the Drug, Chemical and Allied Trades Section of the New York Board of Trade, has been announced for Thursday evening, March 3, at the Hotel Waldorf-Astoria, New York.

New Soap Plant in Brazil

A new soap factory at Mattao, State of Sao Paulo, Brazil, has been placed in operation recently. It is owned by Francisco Falarico.

H. M. Arnott Dies

H. M. Arnott, well-known Scottish soap man, and representative for Lever Brothers in Glasgow, died at Saltcoats, Scotland, recently.

Coal Soap on German Market

Soap manufacturers in Germany have recently introduced a coal derivative soap in that country. The present output is at the rate of 20,000 tons a year. It is expected, however, that this will be raised shortly to around 60,000 tons a year.

Woodbury in Patent Fight

A suit was filed last month against John H. Woodbury, Inc., and Jergens Sales Co., Cincinnati, alleging unfair competition and asking $750,000 damages. The suit was filed in the United States District Court, in Cincinnati, by New Discoveries, Inc., Chicago. The complainant claims that it is the only one in the United States which can legally manufacture and sell Vitamin D produced by direct activation of the sun's rays, but that the defendants are selling soap represented as containing Vitamin D produced in this way, though actually the Vitamin D used in the Woodbury soap is produced by irradiation from a mercury vapor quartz lamp under the Sperti patent.

Chicago Perfumers Party

The annual Christmas dinner dance of the Chicago Perfumery, Soap and Extract Association was held at the Knickerbocker Hotel, Chicago, December 9th. A capacity turnout of members and guests was on hand to enjoy the dinner, dancing and floor show. Unusual souvenir bags were presented to the ladies and door prizes to the holders of lucky numbers.

Harry Baumstark Marries

Harry A. Baumstark of the Chicago office of Monsanto Chemical Company was married last month to Miss Anne Tierney of St. Louis, Mo. The Baumstarks are making their home in Oak Park, Ill.

"Bab-O" Holiday Offer

A tie-up of "Bab-O" cleanser and the Christmas season was featured by the Los Angeles office of B. T. Babbitt & Co., in a series of advertisements run in Los Angeles newspapers during the holidays. The copy offered six Christmas cards in return for one label from a can of "Bab-O" and ten cents. Christmas seals were offered free, as an inducement to act quickly.

N. Y. Drug Section Elects

At the first meeting of the new executive committee of the Drug, Chemical and Allied Trades section of the New York Board of Trade held recently, Philip M. Dinkins, vice-president, American Cyanamid & Chemical Corp., was elected chairman. Charles E. Kelly, president, Hagerty Bros., was elected vice-chairman, and Robert Magnus, Magnus, Mabee & Reynard, Inc., was elected treasurer.

Richardson A.C.S. Councilor

Dr. Albert S. Richardson, director of chemical research, Procter & Gamble Co., Cincinnati, has been elected a councilor at large of the American Chemical Society. He will serve until 1941. Dr. Charles A. Kraus, professor of chemistry and director of chemical research at Brown University, was elected president of the society for 1939.

Colgate Toronto Addition

Colgate-Palmolive-Peet Co., Toronto, Canada, recently began work on a new addition to their Toronto plant. The addition will be two stories high, providing floor space of about 29,700 square feet. Construction will cost $85,000, and equipment $165,000.

Fritzsche Elects Montgomery

John H. Montgomery, former assistant secretary, has been elected secretary and a member of the board of governors of Fritzsche Bros., New York, to fill the vacancy caused by the recent death of A. D. Armstrong. Mr. Montgomery has been associated with Fritzsche Bros. for the past twelve years. He had served as vice-president and general manager of

John H. Montgomery

Capes-Viscose, Inc., which he helped organize, and before that had been a vice-president with Antoine Chiris Co., New York.

Wants Soap Agency

A concern in Puerto Rico is interested in establishing an agency arrangement for sale of American toilet and laundry soaps. Interested parties may secure further particulars through the U. S. Bureau of Foreign & Domestic Commerce, Washington, D. C., inquiry 4718.

Signs FTC Stipulation

Western Reserve Laboratories, Cleveland, have entered into a stipulation with the Federal Trade Commission, at Washington, agreeing to discontinue the use of the words "Benzyne" or "Benzoline" in connection with the sale of a household and automobile windshield cleaner. The preparation is neither a benzene product or crystallized benzene, according to the Commission.

A. W. George Resigns

Packers Tar Soap, Inc., New York, announced the resignation recently of A. W. George, as vice-president, asst. treasurer, and a director of the corporation. Mr. George had completed forty years of service. No successor has been named.

L. P. Reed Dies

L. P. Reed, 55, prominent corporation attorney, and a member of the board of directors of Dodge & Olcott Co., New York, perfuming materials, died at his home in New York, Dec. 2, following a brief illness. Mr. Reed, a graduate of Yale College and Harvard Law School, was known as one of the leading business lawyers in New York City.

Borax Co. Incorporates

Coastal States Borax Co., Los Angeles, has been incorporated in Los Angeles county, with a capital stock of $100,000. Directors are: C. I. Jackson, Fred Jennings, B. C. Jackson, S. Lombard, and C. Noel, all of Long Beach, Calif. John A. Papp, attorney, 620 Security Building, Long Beach, Calif., represents the new corporation.

Announce Packaging Competit'n

The American Management Association has announced details of the seventh competition for the Irwin D. Wolf Packaging Awards. Competition opened Dec. 15, and will close Feb. 9, 1938. Twenty awards for distinctive merit in packaging will be made, in addition to the Irwin D. Wolf Trophy. Awards will be based on a recognition of the importance of those factors that contribute to merchandising effectiveness, economy, efficiency and good design. All packages entered in the competition will be shown as a featured section of the 8th Packaging Exposition, also sponsored by the American Management Association, to be held in the Palmer House, Chicago, March 22 to 25.

Dr. Sanja Schwabacher Dies

Dr. Sanja Schwabacher, 46, president of S. Schwabacher & Co., New York, mineral oil importers, died Dec. 11, of a heart attack. A native of Germany, Dr. Schwabacher came to the United States in 1921 as representative for Oelwerke Julius Schindler, Hamburg oil refiners. He established the firm of S. Schwabacher & Co. in 1925, acting for the Schindler interests. His widow, a son and a daughter survive.

Armour Awarded $187,977 in Processing Tax Refund Suit

ARMOUR & CO., Chicago, will secure a refund of $187,977.47 from the U. S. Government as a result of its successful suit contesting the validity of processing taxes which the government collected on certain oils which the soap company held had been subject to first processing before the effective date of the tax. The Armour suit was tried before Federal Judge John P. Barnes in the U. S. District Court for the Northern District of Illinois, Eastern Division. His decision was in favor of Armour. The revenue department first planned to appeal, but later abandoned the appeal and settled the case by agreement. The compromise settlement eliminated approximately $10,000 from the amount of the total claim as well as interest on the full amount.

The claim for refund was based on taxes collected by the government on the taxable oils used in making the following products, which Armour had on hand in its soap works at 11:40 A.M., E.S.T., on May 10, 1934, and which it subsequently used or processed:

Killed Soap Stock, i.e., soap made by the boiled process, from which the first wash had been taken off;

Kettle Soap in Process of Washing, i.e., boiled soap from which more than one wash had been taken before May 10, 1934;

Settled Soap, i.e., boiled soap from which all washes had been taken before May 10, 1934;

Soap Scraps from soap made by the cold or semi-boiled method in which all the glycerine had been left;

Raw Coconut Oil Foots (made by Armour);

Acidulated Coconut Oil Foots (purchased by Armour).

Judge Barnes handed down his decision without a formal opinion, but did approve certain findings of fact and conclusions of law. Excerpts from the conclusions of law, clarifying the decision in the Armour case, follow:

"Under Section 602½ of the Revenue Act of 1934 the taxable transaction is the first domestic processing of any of the designated oils. By statutory definition, such taxable transaction is the first use in the United States of any of such oils in the manufacture or production of an article intended for sale and is not the manufacture or production of the article intended for sale, including each and every step in such manufacture or production.

"The first domestic processing, that is, the first use in the United States in the manufacture of an article intended for sale, of any of the designated oils is the only taxable transaction; and where such first domestic processing has been done, whether before or after May 10, 1934, no act done thereafter is the first domestic processing.

"In the statutory designation of the taxable transaction the language after the effective date of the statute does not appear and there is no warrant for interpolating such language since its effect would be either (1) to change the nature of the tax from a tax upon the first domestic processing of the oils, to a tax on a later processing if the first occurred prior to the effective date, or (2) to tax retroactively the first domestic processing which occurred prior to the effective date.

"Where the first domestic processing of any of the designated oils has been done, whether before or after the effective date of the tax, and the oil is then combined or mixed with anything else, the processing of the combination or mixture is not a taxable transaction.

"The statute taxes the first domestic processing of any combination or mixture containing a substantial quantity of any one or more of the designated oils. Only those combinations or mixtures that contain oil as such are in the taxable category. Combinations or mixtures containing no oil but only the original chemical components of the oil which have been chemically broken down and united with other substances to form new and different products, such as soap and glycerin, are not in the taxable classification."

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Germany's Soap Exports Up

Germany's export trade in soaps and cleansing agents increased over 15 per cent in value during the first three quarters of 1937, compared to the same period in 1936. The gain is interesting in view of the acute shortage of oils in that country, and suggests an increased production of synthetic fats.

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Awarded the Perkin Medal

At a joint meeting of the American section of the Society of Chemical Industry and the American Chemical Society, held at the Chemists' Club, New York, Jan. 7, Dr. Frank J. Tone was awarded the Perkin Medal of the Society of Chemical Industry for his work in the field of abrasives and refractories. James G. Vail, Philadelphia Quartz Co., Philadelphia, presided.

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Chas. J. Haas in New Hands

Haas-Miller Corp., Philadelphia, industrial chemicals, oils and greases, has recently taken over the entire business of Chas. J. Haas, Inc. The firm also announces the appointment of R. K. Gurney as New England sales manager.

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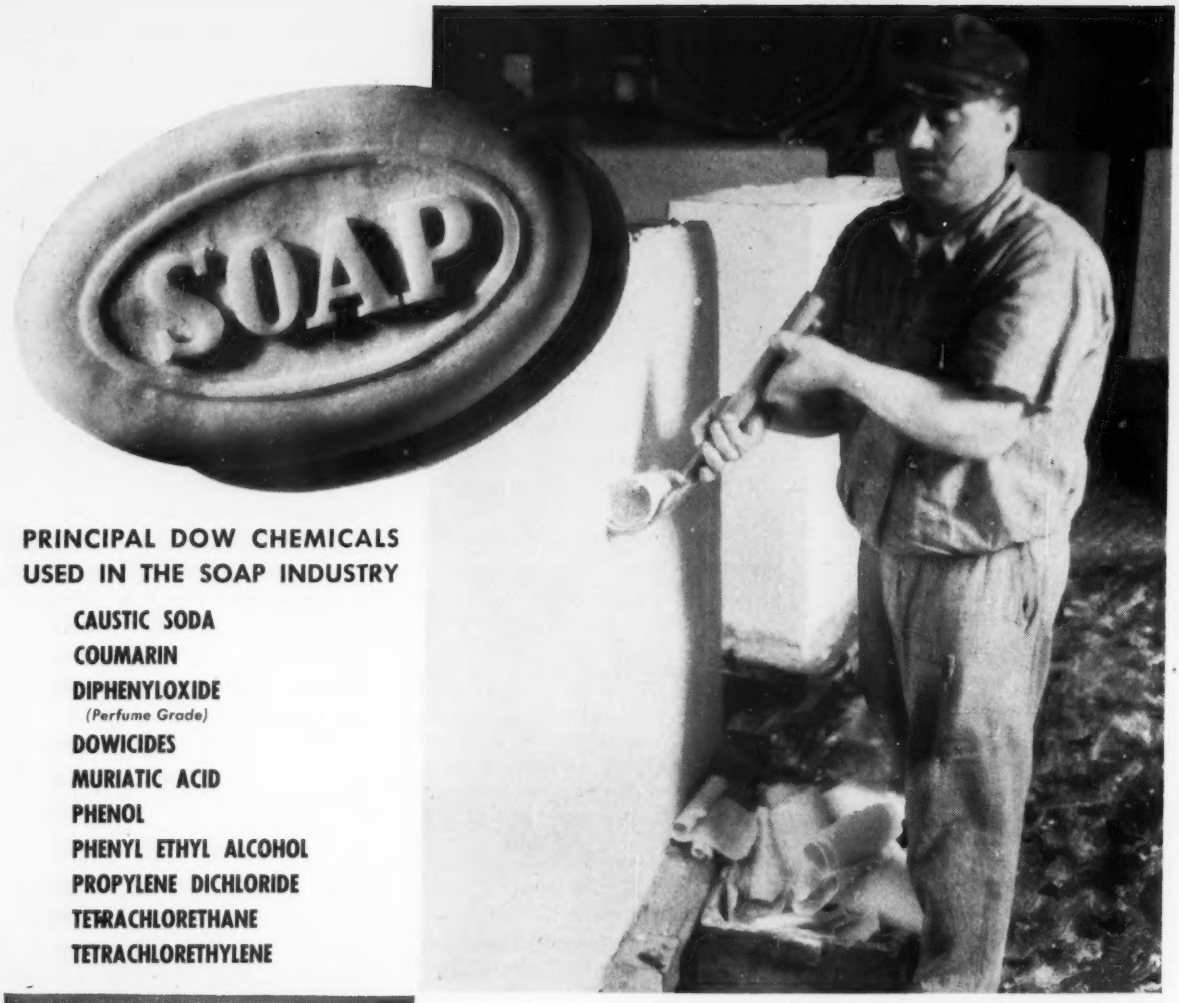
Conway Heads Stock Group

Carle C. Conway, chairman of the board of Continental Can Co., New York, was appointed chairman of the committee named recently to study the organization and administration of the New York stock exchange.



PRINCIPAL DOW CHEMICALS USED IN THE SOAP INDUSTRY

CAUSTIC SODA
COUMARIN
DIPHENYLOXIDE
(Perfume Grade)
DOWICIDES
MURIATIC ACID
PHENOL
PHENYL ETHYL ALCOHOL
PROPYLENE DICHLORIDE
TETRACHLORETHANE
TETRACHLORETHYLENE

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY

A PARTIAL LIST OF DOW INDUSTRIAL CHEMICALS

Aniline Oil • • Calcium Chloride, Flake 77-80%, Solid 73-75% • • Carbon Bisulphide 99.99% • • Carbon Tetrachloride 99.99% • • Caustic Soda, Flake and Solid • • Chloroform • • Epsom Salt, Technical • • Ethyl Bromide • • Ethyl Chloride • • Ferric Chloride • • Magnesium Chloride • • Monochlorbenzene • • Monochloracetic Acid • • Phenol • • Sodium Sulphide • • Sulphur Chloride

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There is scarcely an industry that does not use one or more Dow products somewhere in its manufacturing process and the soap industry is no exception.

Dow is a major producer of caustic soda, organic solvents, perfume bases, and other chemicals used in soap manufacture. Besides functioning as a reliable source of supply for established products, Dow research has made notable contributions to the advancement of the industry through the development of new products that have imparted new and improved qualities to soap.

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F. A. COUNTWAY
Lever Brothers Co.
President

N. S. DAHL
John T. Stanley Co.
Treasurer

S. BAYARD COLGATE
Colgate-Palmolive-Peet Co.
Retiring President

F. A. Countway of Lever Bros.

Elected to Head Soap Assn.

F. A. COUNTWAY, head of Lever Bros. Co., was elected president of the Association of American Soap & Glycerine Producers at the annual meeting held December 8 at the Hotel Biltmore, New York. He succeeds S. Bayard Colgate of Colgate-Palmolive-Peet Co., who has served as president of the organization for the past two years. Mr. Colgate now becomes vice-president for the Eastern states, the post filled during the past year by Mr. Countway. All other officers were re-elected, as follows: vice-president for Central states, R. R. Deupree of Procter & Gamble Co.; vice-president for Western states, F. H. Merrill of Los Angeles Soap Co.; treasurer, N. S. Dahl of John T. Stanley Co.; assistant treasurer, A. Roy Robson of Fels & Co.; and secretary, Roscoe C. Edlund, who is association manager.

Announcement was made at the meeting that the same rates of assessment for members would be in effect for 1938 that have been used during the year just concluded. These rates are as follows: 1/25 of one per cent of net soap sales during 1937 for general soap work; 1/50 of one per cent for soap promotional and publicity work; and 1/10 of a cent per pound of glycerine produced, basis 80 per cent, for glycerine work.

Companies accept such assessments as they themselves decide. In addition, small companies not accepting pro-rata assessment for any phase of the work, pay annual membership dues at any amount from ten dollars up which they themselves set.

It is estimated that these rates will produce a soap budget of approximately $80,000 and a soap publicity budget of $40,000 for 1938. The same glycerine rate over the past year produced an income far in excess of the $70,000 expended, and as a result half of the glycerine assessments have been returned to the individual contributing companies.

Mr. Colgate presided at the December 8 meeting, submitting his report as chief executive of the organization for the past year and introducing the other officers and agents of the association. The report of manager Edlund comprised 95 pages, detailing the work of various branches of the association over the past year. This work included keeping a careful check on federal and state legislation, collection of statistics on soap sales, issuance of publicity releases designed to increase consumption of soap and glycerine, circulation of bulletins, etc.

N. N. Dalton, who supervises the association's work on glycerine, also reported to the members, outlining the present market position for glycerine as well as the possibility for expansion of present uses for glycerine in industry. He reviewed the market situation on oils and fats, touching on developments of the past year, and giving some indication as to what might be expected marketwise over the early months of 1938.

John B. Gordon of the Bureau of Raw Materials for American Vegetable Oils and Fats Industries was also present at the meeting as a guest. He spoke on the work of his group toward modification of the present excessive taxes on soap raw materials in the oil and fat field. He also presented a picture direct from Washington as to what is expected in the way of legislation over the next few months.

Geo. A. Eastwood of Armour & Co. reported on the recent success-

full termination of Armour's case against federal officials seeking refund of taxes paid on partially processed soaps on which the government had demanded that processing taxes be paid. A more detailed account of this case is given elsewhere in this issue.

The meeting closed with the unanimous re-election of all board members. The board of directors then met to name the new officers for the coming year. The board for 1938 will consist of: F. C. Adams, Andrew Jergens Co.; H. D. Banta, Iowa Soap Co.; N. R. Clark, Swift & Co.; S. Bayard Colgate, Colgate-Palmolive-Peet Co.; F. A. Countway, Lever Bros. Co.; N. S. Dahl, John T. Stanley Co.; R. R. Deupree, Procter & Gamble Co.; G. A. Eastwood, Armour & Co.; S. S. Fels, Fels & Co.; F. H. Merrill, Los Angeles Soap Co.; Geo. A. Wrisley, Allen B. Wrisley Co.; and C. F. Young, Davies-Young Soap Co.

Chicago Chemical Banquet

The 35th Annual Christmas banquet of the Chicago Drug and Chemical Association was held at the Hotel Stevens, Chicago, December 21st. There were three hundred members and guests present to enjoy the turkey dinner and 15-act floor show which followed. In addition to the gigantic gift bag received by everyone, drawings were held for a big supply of door prizes. The entertainment committee consisted of R. L. Holland, chairman; L. H. MacDougall, vice-chairman; Carl Abrahamson, C. M. Black, C. Christensen, Harris Frazier, L. A. Lanigan, G. F. Pauley, Stewart Rice, A. G. Schnieder, Floyd Thayer, Harry Wallace and J. E. Ward.

Sunclo Products Move

Sunclo Products, maintenance and cleaning supplies, have moved their offices to 19 River St., Toronto, Ontario, Canada. They were formerly at 72 Don Esplanade, that city.

Filter Paper Adds Schultz

Filter Paper Co., Chicago, has added John J. Schultz, formerly with Crown Cork & Seal Co., to its sales staff.

Fritzsche Sales Staff at the Annual Conference in New York

Watt Joins British Oxygen

W. W. Watt, former chairman and managing director of Ogston and Tennant, Scottish soap concern, and more recently vice-chairman of the management committee of Lever Bros., Port Sunlight, has been appointed joint managing director of British Oxygen Co., London, England.

Offers Patent Service

Paul D. Boone, former student and instructor in chemistry at Yale, has announced the opening of an office at 1909 19th St., Washington, specializing in the solicitation of chemical patents.

Appoints New Agency

Greenville Chemical Co., dry cleaners' supplies, Greenville, S. C., has appointed Barron Advertising Agency, that city, to direct its advertising.

Goodwin Heads New Depts.

H. A. Goodwin, advertising manager, Continental Can Co., New York, has also been placed in charge of the newly organized market research and development departments of the company. His headquarters will continue to be in New York.

Correction

In the November issue of SOAP it was incorrectly stated that the liner *Queen Mary* was launched in England. The *Queen Mary* was launched on the river Clyde, in Scotland. The error was reported by Alexander Lindsay, Chicago.

Fritzsche Salesmen Meet

Fritzsche Bros., New York perfuming materials firm, held their annual sales conference the week of Dec. 6 to 11, at the company's New York headquarters in the Port Authority Commerce Building. In addition to the regular business sessions, the program included daily luncheons at the Hotel New Yorker, an evening at the International Casino, and a dinner dance at the Hotel New Yorker.

Naugatuck in New Quarters

Naugatuck Aromatics, Division of United States Rubber Products, Inc., has just moved into new quarters at 153 Waverly Place, New York. Naugatuck Aromatics combines for the United States the entire facilities in aromatic chemicals, essential oils and perfume specialties of Naugatuck Chemical, Bruno Court, Compagnie Africaine Des Plantes a Parfum and Louis Bornand. The office will be in the direct charge of M. G. Couderchet, recently of Bruno Court, Grasse. He will be assisted by Allan L. Ritch and Frank H. Sloan, sales representatives and Georges C. Coquel, perfumer. John P. Coe, of Naugatuck Chemical Co., will have general supervision over the aromatic division. Harold J. Edmon will continue to act as representative in Chicago, with offices at 440 W. Washington St., and Charles J. Horney Co. in Los Angeles at 1313 N. Vermont Ave. Complete stocks will be carried at the New York headquarters where the perfume laboratory will be maintained. Tonnage shipments will continue to be made from the factory at Naugatuck, Conn.

Contracts Awarded

Brooklyn Soap Awards

John T. Stanley Co., New York, was awarded a contract on 675,000 lbs. laundry soap in a recent opening by the U. S. Quartermaster at Brooklyn, at a price of 3.4c. On 60,000 cakes of grit soap, Day & Frick, Philadelphia, were awarded the contract at 2.95c.

Shaving Soap Awards

N. Brittingham & Sons, Philadelphia, were awarded a contract on 3,000 lbs. of shaving soap at 23c, in a recent opening by the Veterans Administration, at Washington. On 3,600 doz. tubes of shaving cream, Trade Laboratories, Newark, N. J., were awarded the contract at 51c.

Low Soap Bidders

Davies-Young Soap Co., Washington, was low bidder on 7,000 lbs. of automobile soap for delivery to Bureau of Supply, United States Treasury Dept., Washington, in a recent opening, with a quotation of 5.05c. On 18,240 lbs. of laundry soap, Armour & Co., Chicago, were low bidders, with a price of 2.6c.

Low Soap Bidders

Davies-Young Soap Co., Washington, was low bidder on 55 10-lb. cans of automobile soap for delivery to Post Office Department, Washington, in a recent opening, with a quotation of 5.9c. On 25 50-lb. cans, Crystal Soap & Chemical Co., Philadelphia, was low bidder with a price of 4.61c. On 15 half-barrels Crystal Soap & Chemical was again low bidder with a price of 4.15c. And on 22 500-lb. barrels, Crystal Soap & Chemical was low bidder with a quotation of 3.85c.

Ft. Peck Disinfectant Award

A. Daigger & Co., Chicago, were awarded a contract on 400 gals. of disinfectant at a cost of $392.84, in a recent opening by the U. S. Engineers Corps at Fort Peck, Mont.

Ft. Mason Soap Awards

Colgate-Palmolive-Peet Co., Berkeley, Calif., was awarded a contract on 160,000 lbs. laundry soap in a recent opening by the U. S. Army Quartermaster, at Fort Mason, San Francisco, at a price of 3.44c. On 50,000 lbs. of laundry soap, Pioneer Soap Co., San Francisco, was awarded the contract at 3.4c.

St. Louis Soap Awards

Swift & Co., Chicago, were awarded a contract on 1,375 lbs. of grit soap in a recent opening by the U. S. Engineers Corps, at St. Louis, at a price of $6.97 per 100 lbs. On 9,000 lbs. of laundry soap, Colgate-Palmolive-Peet Co., Jersey City, N. J., was awarded the contract at $3.84 per 100 lbs. On 3,750 lbs. of soap powder, Hecker Products Corp., New York, was awarded the contract at $2.86 per 100 lbs.

Ft. Sam Houston Soap Awards

Dixie Supply Corp., San Antonio, Tex., was awarded a contract on 300 lbs. soap chips at 9c in a recent opening by the U. S. Army Quartermaster at Fort Sam Houston, Tex. On 36,000 lbs. soap chips, Sterling Supply Corp., Philadelphia, was awarded the contract at 7.25c. On 500 lbs. caustic soda, Midvale Industrial Chemical Corp., Oklahoma City, Okla., was awarded the contract at 3.49. On 3,240 lbs. chip soap, M. Werk Co., St. Bernard, Ohio, was awarded the contract at 7.93c. On 225 lbs. laundry soap, Procter & Gamble Dist. Co., Dallas, Tex., was awarded the contract at 8.67c. On 3,360 lbs. soda ash, Ryan Brokerage Co., San Antonio, was awarded the contract at 2.12c. On 100 lbs. laundry soap, Dixie Supply Co., San Antonio, was awarded the contract at 12.5c.

On 2,250 lbs. soap chips, M. Werk Co., St. Bernard, Ohio, was awarded the contract at 7.93c. On 4,200 lbs. laundry soap, H. Kohnstamm & Co., Chicago, were awarded the contract at 2.75c. On 1,500 lbs. soap chips, M. Werk Co., St. Bernard, Ohio, was awarded the contract at 7.93c. On 8,000 lbs. soap chips, Procter & Gamble Dist. Co., Dallas, Tex., was awarded the contract at 7.94c. On 38,000 lbs. soap chips, Swift & Co., San Antonio, were awarded the contract at 7.33c. On 2,000 lbs. laundry soap, Colgate-Palmolive-Peet Co., Jersey City, N. J., was awarded the contract at 7.56c. On 800 lbs. naphthalene, Peaslee-Gaulbert Corp., San Antonio, was awarded the contract at 9.5c.

Brooklyn Toilet Soap Awards

Trade Laboratories, Newark, N. J., were awarded the contract for 200,000 tubes of shaving cream at 4.22c each, in a recent opening by the U. S. Quartermaster at Brooklyn. Weco Products Co., Chicago, was awarded the contract for 200,000 tubes of tooth paste, at 2.5c each. On 200,000 cakes of toilet soap, J. Eavenson & Sons, Camden, N. J., were awarded the contract at a price of 1.275c.

Fort Mason Soap Award

Conray Products Co., New York, has been awarded a contract for a quantity of grit soap type A at a price of 3.6c, and a quantity of grit soap, type B, at a price of 3.3c, in a recent opening by the quartermaster at Fort Mason, Calif. On a quantity of laundry soap, Colgate-Palmolive-Peet, Berkeley, Calif., was given the contract at a price of 3.29c.

Snell Delivers Talk

Foster D. Snell, chemical research counselor, Brooklyn, addressed the New York section of the American Society for Testing Materials recently. His subject was "Some Factors in Detergency".

W. C. Hardesty Moves

W. C. Hardesty Co., New York, soap raw materials, recently moved its Wilmington and Long Beach offices to 5636 East 61st St., Los Angeles.

18 Perfect Answers to this Knotty Problem

.....while our price limit is $3.50 per pound, the soap perfumes you recommend must be absolutely stable, very enduring and of extra good quality.

FLORALS

CARNATION No. 9
GARDENIA No. 25
JASMINE No. 21
*JASMINE No. 22
(Non-discoloring)
*LAVENDER No. 23
(PURPLE) LILAC No. 20
(WHITE) LILAC No. 21
*ORANGE BIGARADE No. 5
(For colored soaps)
ORANGE PETAL No. 18
(Non-discoloring)
ROSE No. 24
*TRAILING ARBUTUS No. 5
*TRIFOLEUM No. 5
VIOLET No. 10

●

BOUQUETS

FOUGERE No. 11
*KASMA No. 5
*PALM No. 5
*SANDALWOOD No. 5
BOUQUET No. 122

●

*Suitable also for use in liquid soaps.

THIS request doesn't sound like a stickler until you consider its exacting stipulations as to quality and price. And therein, precisely, lay our real problem. But we found the answer. In fact, we worked out eighteen highly satisfactory solutions for the same problem—thirteen florals and five bouquets—all of the desired quality, all fully resistant to oxidation and tenacious, and ALL made to sell for $3.50, or less, per pound!

In building this THRIFTY THREE-FIFTY Series of soap perfumes we put in the utmost in raw material value and blending skill. Each compound was subjected to the severest possible tests, and all came through with perfect scores. They were matched against similar but costlier products and pronounced superior. On the basis of these comparisons we feel justified in predicting that the use of any one of these specialties will prove a revelation in soap perfuming value. Why not select one or two of the odors listed and send for testing samples? You'll like the quality; you'll like the fragrance; and you'll surely like the economical, low cost!

"Fragrance Creates Sales Appeal"

FRITZSCHE Brothers, inc.

816 WEST 8TH STREET LOS ANGELES, CAL.
Proprietors of PARFUMERIES de SEILLANS Seillans, France
FRITZSCHE BROTHERS, of Canada, Ltd., 77-79 Jarvis St., Toronto, Canada

PORT AUTHORITY COMMERCE BLDG.
76 NINTH AVENUE, NEW YORK, N. Y.
118 WEST OHIO ST CHICAGO, ILL

Merck Votes Employe Fund

Merck & Co., Rahway, N. J., recently announced a retirement income plan for their 1,500 employes, which will combine the insurance benefits of the Federal Social Security Act with a form of participation in the profits of the company. For services after Dec. 30, 1937, the company will contribute on an equal basis with the employe towards the purchase of retirement insurance. Supplemental benefits will also be provided without cost to the employe. The amount of these will depend on the company's earnings. Each year in which dividends exceeding $1 a share are paid on common stock, an amount equal to one-third of the excess will be appropriated for these benefits. The new plan will be put into effect Jan. 1.

Agency for Golden Glint

Golden Glint Co., Seattle, has appointed Botsford, Constantine & Gardner, that city, to handle advertising for their shampoo and hair rinse.

C-P-P Contest Winners Feted

Winners in the annual national sales contest conducted by the toilet article department of Colgate-Palmolive-Peet Co. were treated to a luncheon at the Waldorf-Astoria, New York, on Dec. 13, as part of a week's program of entertainment.

Would Purchase Toilet Goods

A concern in Canada is interested in the purchase of tooth pastes, shaving creams, and private brands. Interested parties may secure further particulars through the U. S. Bureau of Foreign & Domestic Commerce, Washington, D. C., inquiry 4769.

William E. Taylor Dies

William E. Taylor, 59, vice-president and director of American Can Co., New York, died suddenly last month in St. Luke's Hospital, Chicago. Mr. Taylor had been with American Can since the formation of the company in 1901.

New Trade Marks

The following trade-marks were published in the December issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Marks Filed

DEADLINE—This in solid letters describing insecticide. Filed by California Spray-Chemical Corp., Richmond, Calif., Aug. 23, 1937. Claims use since Jan. 23, 1936.

BACTERGENT—This in solid letters describing water softener. Filed by Calgon, Inc., Pittsburgh, Oct. 4, 1937. Claims use since Sept. 27, 1937.

ELECTROLUX — This in solid letters describing insecticide. Filed by Electrolux, Inc., New York, Oct. 14, 1937. Claims use since Feb., 1937.

TESTONE—This in script letters describing anti-freeze. Filed by Templar Products Co., New York, Oct. 14, 1937. Claims use since Sept. 1, 1937.

AGICIDE—This in shaded letters describing insecticide. Filed by Agicide Laboratories, Milwaukee, Oct. 18, 1937. Claims use since May 16, 1936.

PET—This in solid letters describing cleaning powder. Filed by Pet Products Co., New York, Dec. 17, 1936. Claims use since Sept. 8, 1936.

PRO-PHY-LAC-TIC — This in solid letters describing soap. Filed by Pro-phy-lac-tic Brush Co., Northampton, Mass., June 22, 1937. Claims use since 1885.

SEE MORE—This in solid letters with drawing of a human eye between the two words, describing cleaner. Filed by Joseph Smidt Co., Chicago, June 28, 1937. Claims use since Aug. 1, 1936.

I-X-L—This in solid letters describing cleaner. Filed by Tri-State Development Corp., Burnsville, N. C., Sept. 8, 1937. Claims use since Aug. 24, 1937.

MIDCLEAN—This in solid letters describing liquid cleanser. Filed by Midland Chemical Laboratories, Dubuque, Ia., Sept. 18, 1937. Claims use since Aug. 31, 1937.

JAXITE—This in solid letters describing automobile polish. Filed by Jackson Laboratories, Philadelphia, Oct. 12, 1937. Claims use since Aug. 13, 1937.

REDIGLOW—This in solid letters describing polish. Filed by E. W. Bennet & Co., San Francisco, Sept. 27, 1937. Claims use since Aug. 23, 1937.

RESURRECTION—This in solid letters describing shampoo. Filed by Laboratory Products, Memphis, Tenn., Oct. 22, 1937. Claims use since Aug. 1, 1937.

PEDIGREED—This in solid letters describing shampoo. Filed by Laboratory Products, Memphis, Tenn., Oct. 22, 1937. Claims use since Aug. 1, 1937.

Trade Marks Granted

351,492. Insecticide. Harry G. Hutson, Atlanta, Ga. Filed February 23, 1937. Serial No. 389,252. Published August 10, 1937. Class 6.

351,536. Insecticides and Fungicides. Ridge Tool Co., North Ridgeville, Ohio. Filed May 10, 1937. Serial No. 392,555. Published August 17, 1937. Class 6.

351,550. Suppositories, Antiseptics and Disinfectants. Lehn & Fink Products Corp., Bloomfield, N. J. Filed May 18, 1937. Serial No. 392,933. Published August 10, 1937. Class 6.

351,605. Insecticides for Horticultural Use. Dye-Col Products, Inc., New York. Filed June 11, 1937. Serial No. 393,948. Published August 17, 1937. Class 6.

351,639. Water Softener and Household Cleanser. Saoso Chemical Co., Dallas, Tex. Filed June 19, 1937. Serial No. 394,272. Published August 24, 1937. Class 6.

351,747. Floor Polishing Liquid Wax. Charles W. Berg Laboratories, Philadelphia. Filed July 14, 1936. Serial No. 381,099. Published August 31, 1937. Class 16.

351,756. Metal Polish. Midway Chemical Co., Jersey City, N. J. Filed November 30, 1936. Serial No. 386,121. Published August 24, 1937. Class 4.

351,787. Rosin Soap. Hercules Powder Co., Wilmington. Filed May 6, 1937. Serial No. 392,362. Published August 24, 1937. Class 4.

351,795. Tooth Paste. H. Y. H. Factory, San Francisco. Filed May 19, 1937. Serial No. 392,982. Published August 31, 1937. Class 6.

351,807. Toilet Soaps. Air Conditioned Fabrics Corp., New York. Filed June 8, 1937. Serial No. 393,790. Published August 24, 1937. Class 4.

351,836. Preparation for Cleaning Wall Paper. Bennett Glass & Paint Co., Salt Lake City, Utah. Filed July 1, 1937. Serial No. 394,739. Published August 24, 1937. Class 4.

351,862. Toilet Soap. Wilson & Co., Inc., Chicago. Filed July 12, 1937. Serial No. 395,160. Published August 31, 1937. Class 4.

352,163. Insecticide. Ymba Corp., New York. Filed February 15, 1937. Serial No. 388,890. Published April 6, 1937. Class 6.

352,169. Detergent for cleaning dairy equipment. Calgon, Inc., Pittsburgh. Filed March 30, 1937. Serial No. 390,687. Published September 7, 1937. Class 4.

352,170. Detergent. Calgon, Inc., Pittsburgh. Filed March 30, 1937. Serial No. 390,688. Published September 7, 1937. Class 4.

352,185. Soap. S. H. Kress and Co., New York. Filed April 23, 1937. Serial No. 391,765. Published September 7, 1937. Class 4.

352,230. Cleaning Compounds. Kraft Products Co., Altoona, Pa. Filed June 18, 1937. Serial No. 394,234. Published September 7, 1937. Class 4.

352,259. Shampoo. Los Angeles Soap Co., Los Angeles. Filed

July 3, 1937. Serial No. 394,847. Published September 7, 1937. Class 6.

352,357. Shampoo. Millerine Co., Seattle. Filed March 15, 1937. Serial No. 390,079. Published Sept. 21, 1937. Class 6.

352,406. Insecticides. McLaughlin Gormley King Co., Minneapolis. Filed June 14, 1937. Serial No. 394,043. Published Sept. 14, 1937. Class 6.

352,418. Dentifrice. Air-O-Dent Co., Chicago. Filed June 19, 1937. Serial No. 394,309. Published Sept. 14, 1937. Class 6.

352,420. Dentifrice. Pro-phylac-tic Brush Co., Northampton, Mass. Filed June 22, 1937. Serial No. 394,384. Published Sept. 14, 1937. Class 6.

352,421. Machines for Applying Insecticidal Sprays. Tobacco By-Products and Chemical Corp., Louisville. Filed June 22, 1937. Serial No. 394,391. Published Sept. 21, 1937. Class 23.

352,432. Shampoo. Morning Glo Laboratories, Chicago. Filed June 29, 1937. Serial No. 394,680. Published Sept. 21, 1937. Class 6.

352,447. Drain Pipe Cleaner. Stanley Paint & Varnish Co., Brooklyn. Filed July 3, 1937. Serial No. 394,870. Published Sept. 14, 1937. Class 6.

352,448. Wall Paper Remover. Stanley Paint & Varnish Co., Brooklyn. Filed July 3, 1937. Serial No. 394,872. Published Sept. 14, 1937. Class 6.

352,464. Insecticides. McLaughlin Gormley King Co., Minneapolis. Filed July 14, 1937. Serial No. 395,199. Published Sept. 21, 1937. Class 6.

352,467. Wax Linoleum. Baldwin Laboratories, Inc., Saegertown, Pa. Filed July 16, 1937. Serial No. 395,263. Published Sept. 21, 1937. Class 16.

352,477. Mothproofing Preparations. Kydo Mothproofing Corp., Boston. Filed July 20, 1937. Serial No. 395,450. Published Sept. 21, 1937. Class 6.

352,550. Clothes Washing Soap. Gordon-Allen Ltd., Oakland, Calif. Filed June 12, 1935. Serial No. 366,095. Published Sept. 21, 1937. Class 4.

352,557. Superfatted Dry Cleaner. R. R. Street & Co., Chicago. Filed June 1, 1936. Serial No. 379,154. Published Sept. 28, 1937. Class 4.

352,590. Cleaner. Buck-O Cleaner Co., Marshalltown, Ia. Filed April 1, 1937. Serial No. 390,777. Published Sept. 21, 1937. Class 4.

352,593. Cleaning Preparation. Bowes Products Co., Passaic, N. J. Filed April 10, 1937. Serial No. 391,171. Published Sept. 28, 1937. Class 4.

352,627. Cleaning Preparation. Pal Products Co., Brooklyn. Filed June 18, 1937. Serial No. 394,247. Published Sept. 28, 1937. Class 4.

352,629. Soap. Robinson Bros. & Co., Portland, Maine. Filed June 21, 1937. Serial No. 394,350. Published Sept. 21, 1937. Class 4.

352,752. Shampoos. Benjamin La Rosa, New York. Filed Jan. 13, 1937. Serial No. 387,749. Published Sept. 28, 1937. Class 6.

352,767. Insecticides. Sherwin-William Co., Cleveland. Filed April 1, 1937. Serial No. 390,814. Published Oct. 5, 1937. Class 6.

352,802. Farm Disinfectant. Dr. Salsbury's Laboratories, Charles City, Iowa. Filed June 14, 1937. Serial No. 394,059. Published Oct. 5, 1937. Class 6.

352,803. Water Softener. Calgon, Inc., Pittsburgh. Filed June 15, 1937. Serial No. 394,109. Published Oct. 5, 1937. Class 6.

352,804. Water Softener. Calgon, Inc., Pittsburgh. Filed June 15, 1937. Serial No. 394,110. Published Oct. 5, 1937. Class 6.

352,816. Perfume. Halle Bros. Co., Cleveland. Filed June 24, 1937. Serial No. 394,458. Published Oct. 5, 1937. Class 6.

352,817. Perfumes. Jean Patou, Inc., New York. Filed June 25, 1937. Serial No. 394,504. Published Oct. 5, 1937. Class 6.

352,845. Perfumes. California Perfume Co., New York. Filed July 9, 1937. Serial No. 395,015. Published Sept. 28, 1937. Class 6.

352,849. Shampoo. Modernistic Beauty Service, Omaha. Filed June 17, 1937. Serial No. 394,165. Published Oct. 5, 1937. Class 6.

352,869. Perfumes. Scotch Products, Inc. New York. Filed July 20, 1937. Serial No. 395,460. Published Sept. 28, 1937. Class 6.

352,879. Insecticide. Nott Manufacturing Co., New York. Filed July 23, 1937. Serial No. 395,576. Published Sept. 28, 1937. Class 6.

352,890. Dog Shampoo. Cane Chemical Co., New York. Filed July 29, 1937. Serial No. 395,747. Published Sept. 28, 1937. Class 6.

352,922. Water Softener and Germicide. Calgon, Inc., Pittsburgh. Filed August 10, 1937. Serial No. 396,223. Published Sept. 28, 1937. Class 6.

Senn Extends Service

George Senn, Philadelphia, oils and naval stores, announces the construction of a bulk station for storage and tank wagon delivery of benzol, xylol, toluol, and "2-50-W Hi-Flash Naphtha." The concern represents Taylor, Lowenstein & Co., Mobile, Ala., in naval stores, and Neville Co., Pittsburgh, in coal tar by-products.

Wilson & Bennett Pays Bonus

Wilson & Bennett Mfg. Co., Chicago, steel containers, distributed $15,000 in silver dollars among their employes, Dec. 21, as a Christmas bonus. The bonuses ranged from $5 to $300 apiece, depending upon the length of service, and were distributed among 250 employes.

Cottonseed Oil on Hand

The U. S. Department of Commerce at Washington reports 185,496,010 lbs. of crude cottonseed oil on hand in United States Nov. 30, 1937, as compared with 143,129,878 lbs. on hand Nov. 30, 1936.

To Control Citronella Exports

Netherlands Indies has established centralized control and license requirements for exports of citronella oil and certain other essential oils.

Raw Material Markets

(As of December 30, 1937)

NEW YORK—The market for soap and sanitary products raw materials went through a quiet stretch during the period just closed, with only a few minor price changes and little shipment activity. A desire to keep inventories low over the year-end made buyers indisposed to order out any larger stocks of supplies than absolutely necessary, and the uncertainty in the business outlook contributed further to this tendency. An expansion in demand of substantial proportions is looked for, however, before the close of the first quarter. Oils and fats continued to drop in price over the past month and closed the year at the lows. At current levels coconut and palm kernel oils are five cents a pound below their January, 1937, levels, and tallow has dropped three cents a pound over the same period.

OILS AND FATS

The most important factor in soap making raw material prices over the year 1937 was the steady decline in the price of oils and fats. Prices of most soapmaking fats were more than cut in half in the downward movement which started toward the close of the first quarter. As the year ended the trend was still downward, although the pace of the decline had slackened.

Coconut Oil

After dropping to as low as 3⅞c per pound early in the period, coconut oil quotations reversed their trend midway and closed a quarter of a cent higher at 4⅛c. The factor behind the advance was reported to be heavy buying of copra by European accounts. As yet it is stated that American buyers have not taken this as a signal to again resume substantial buying themselves.

Palm Oil

A steadier tone was noted in palm and palm kernel oils this period and shippers were reported to be more optimistic in their price ideas than they have been in recent months. Substantial new buying has not developed, it is stated, although inquiries have been more active.

Tallow

Tallow and grease continued to decline this period, reaching the lowest levels of the year. City extra is quoted at 5⅞c per lb., with little buying interest even at this figure. Any substantial re-entry of buyers into the market, however, could cause prices to advance sharply, as offerings have also been scarce. Stocks of tallow at the close of the third quarter were down to 168,000,000 lbs., a drop of 77,000,000 lbs. from the close of the 1936 third quarter. The increase in the import tax on foreign tallow has practically stopped these shipments.

PERFUMING MATERIALS

Anise Oil

Anise oil moved slightly lower in the spot market this period and currently ranges from $1.25 to $1.30 per lb. As yet shipments from China continue in a very uncertain state, and it may be months or years before a normal stock condition is again established.

Bergamot Oil

Bergamot oil advanced ten cents a pound this period, as shippers held the price of replacement oil firm. The market range is now from $4.00 to $4.10.

Bois de Rose

Brazilian and Cayenne grades of bois de rose oil moved in different directions this period, the former advancing in price, while the latter moved so much lower that the normal spread between the two grades was almost eliminated.

Aromatic Chemicals

A number of items in the aromatic chemical group declined further this period. Among the products effected were benzyl alcohol, citral, diphenyl oxide, menthol, phenylacetic acid and terpinyl acetate.

MISCELLANEOUS

Pyrethrum

The insect powder market was practically unchanged this period, but extract prices continue to move higher. The explanation of this situation is found in the progressively poorer quality of the flowers being received, which makes necessary use of greater amounts to bring the extracts up to proper strength.

Rosin

There was a mixed trend to the rosin market this period, with the darker grades moving to lower levels, while the better grades were quoted slightly higher in price.

Waxes

Quotations on various grades of bees wax and carnauba wax moved a cent to two cents a pound lower this period.

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Givaudan Sales Conference

The annual sales meeting of Givaudan-Delawanna, Inc., perfuming materials house was held at the New York offices, January 5, 6 and 7, with sales representatives in attendance from all over the country. Dr. Eric C. Kunz, executive manager, delivered an address of welcome at the opening meeting and outlined a program of talks and conferences for the succeeding days. The three-day meeting closed, January 7, with a dinner.

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Joins J. P. McKinney

J. E. Coombes, formerly with Procter & Gamble Co., has joined J. P. McKinney & Son, at Chicago.

◆

Mark T. Sunstrom Dies

Mark T. Sunstrom, president of Alpha Chemical Co., Baltimore, died Dec. 18.

Raw Material Prices

(*As of December* 30, 1937)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C. P., drums	lb.	$ .06	$ .06½
Acid. Boric, bbls., 99½%	ton	95.00	100.00
Cresylic, drums	gal.	.89	.93
Low boiling grade	gal.	.92	.96
Oxalic, bbls.	lb.	.11½	.12¼
Adeps Lanae, hydrous, bbls.	lb.	.16	.18
Anhydrous, bbls.	lb.	.17	.19
Alcohol, Ethyl, U. S. P., bbls.	gal.	4.14	4.19
Complete Denat., SD 1, drums, ex. gal.		.32	.37
Alum. Potash lump	lb.	.03½	.03¾
Ammonia Water, 26°, drums	lb.	.02¼	.02½
Ammonium Carbonate, tech., bbls.	lb.	.08	.12½
Bentonite 1	ton	—	16.00
Bentonite 2	ton	—	11.00
Bleaching Powder, drums	100 lb.	2.25	2.60
Borax, pd., cryst., bbls., kegs	ton	47.00	67.00
Carbon Tetrachloride, car lots	lb.	—	.05¼
L. C. L.	lb.	.07	.08
Caustic, see Soda Caustic, Potash Caustic			
China Clay, filler	ton	10.00	25.00
Cresol, U. S. P., drums	lb.	.12	.12½
Creosote Oil	gal.	.13½	.14
Feldspar (200 to 325 mesh)	ton	14.00	15.00
Formaldehyde, bbls.	lb.	.05¾	.06¼
Fullers Earth	ton	15.00	24.00
Glycerine, C. P., drums	lb.	—	.19½
Dynamite, drums	lb.	—	.19½
Saponification, drums	lb.	.11½	.12
Soap, lye, drums	lb.	.10½	.11
Hexalin, drums	lb.	—	.30
Kieselguhr, bags	ton	—	35.00
Lanolin, see Adeps Lanae.			
Lime, live, bbls.	per bbl.	1.70	2.20
Mercury Bichloride, kegs	lb.	1.15	1.30
Naphthalene, ref. flakes, bbls.	lb.	.07¼	.07½
Nitrobenzene (Myrbane) drums	lb.	.09	.11
Paradichlorbenzene, bbls., kegs	lb.	.12½	.14½
Petrolatum, bbls. (as to color)	lb.	.02	.07¼
Phenol, (Carbolic Acid), drums	lb.	.13¼	.14¼
Pine Oil, bbls.	gal.	.70	.85
Potash, Caustic, drums	lb.	.06¼	.06½
Flake	lb.	.07	.07¼
Potassium Carbonate, solid	lb.	.07¼	.09½
Liquid	lb.	.03½	.03¾
Pumice Stone, powder	100 lb.	3.00	4.00
Rosins (600 lb. bbls. gross for net)—			
Grade B to H, basis 280 lbs.	bbl.	6.10	6.70
Grade K to N	bbl.	6.80	7.25
Grade WG and X	bbl.	7.80	8.15
Wood FF Spot	bbl.	6.70	7.65
Rotten Stone, pwd. bbls.	lb.	.02½	.04½
Silica	ton	20.00	27.00
Soap, Mottled	lb.	.04⅛	.04⅜
Olive Castile, bars	lb.	.26	.35
Olive Castile, powder	lb.	.28	.38
Powdered White, Neutral	lb.	.19½	.21½
Olive Oil Foot, bars, 68-70%	lb.	.09	.09½
Green, U. S. P.	lb.	.08	.09½
Tallow Chips, 88%	lb.	.09	.09½
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.08	1.35
Car lots, in bulk	100 lb.	—	.90
Soda Caustic, cont., wks., solid	100 lb.	—	2.30
Flake	100 lb.	—	2.70
Liquid, tanks	100 lb.	—	1.95
Soda Sal., bbls.	100 lb.	$1.10	$1.30
Sodium Chloride (Salt)	ton	11.40	14.00
Sodium Fluoride, bbls.	lb.	.07¼	.08¾
Sodium Hydrosulphite, bbls.	lb.	.19	.20
Sodium Silicate, 40 deg., drum	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.35	1.75
Tar Acid Oils, 15-25%	gal.	.22½	.30½
Triethanolamine	lb.	.20	.25
Trisodium Phosphate, bags, bbls.	lb.	.02½	.03
Zinc Oxide, lead free	lb.	.06	.06¼
Zinc Stearate, bbls.	lb.	.20	.22

Oils — Fats — Greases

Babassu, tanks, futures	lb.	.06¾	.06⅞
Castor, No. 1, bbls.	lb.	.10¾	.11½
No. 3, bbls.	lb.	.10¼	.11
Coconut (without excise tax)			
Manila, tanks, N. Y.	lb.	.04⅛	—
Tanks, Pacific coast, futures	lb.	.03¾	—
Cod, Newfoundland, bbls.	gal.	.52	Nom.
Copra, bulk, coast	lb.	.0230	.0235
Corn, tanks, mills	lb.	.06⅝	.06¾
Cottonseed, crude, tanks, mill	lb.	.05⅞	.06
PSY, futures	lb.	.07⅛	.07¼
Fatty Acids	lb.	.05½	.06½
Degras, Amer., bbls.	lb.	.07½	.08¼
English, bbls.	lb.	.07½	.08¼
Neutral, bbls.	lb.	.10¾	.15
Greases, choice white bbls., f.o.b.			
Chicago	lb.	.06¾	.07⅛
Yellow	lb.	.04¼	.04½
House	lb.	.04¼	.04½
Lard, City	lb.	.09	.09¼
Compound tierces	lb.	.10¼	.10½
Lard Oil,			
Extra, bbls.	lb.	—	.10¾
Extra, No. 1, bbls.	lb.	—	.09¼
No. 2, bbls.	lb.	—	.08½
Linseed, raw, bbls.	lb.	.1020	.1060
Tanks, raw	lb.	—	.0960
Boiled, 5 bbl. lots	lb.	.1140	.1160
Menhaden, crude, tanks, Balt.	gal.	.37½	Nom.
Oiticica Oil, tanks	lb.	.12¾	.13
Oleo Oil, No. 1, bbls., N. Y.	lb.	—	.10½
No. 2, bbls., N. Y.	lb.	—	.10
Olive, denatured, bbls., N. Y.	gal.	1.15	1.20
Foots, bbls., N. Y.	lb.	.09⅝	.09⅞
Palm, shipment	lb.	.03½	Nom.
Palm Kernel, shipment	lb.	.04½	Nom.
Peanut, domestic, tanks	lb.	.06⅝	Nom.
Rapeseed Oil, denat.	gal.	.90	.91
Red Oil, distilled, bbls.	lb.	.09⅝	.10⅝
Saponified, bbls.	lb.	.09⅝	.10⅝
Tanks	lb.	.08¾	.09¾
Sesame Oil, dms.	lb.	.10¼	.10½
Soya Bean, domestic tanks, crude	lb.	—	.06
Stearic Acid,			
Double pressed	lb.	.11	.12
Triple pressed, bgs.	lb.	.13¾	.14¾
Stearine, oleo, bbls.	lb.	.07	.07¼
Tallow, special, f.o.b. plant	lb.	.05¼	.05½
City, ex. loose, f.o.b. plant	lb.	—	.05⅞
Tallow oils, acidless, tanks, N. Y.	lb.	—	.09
Bbls., c/l N. Y.	lb.	—	.09½
Teaseed Oil, crude	lb.	.09	.09¼
Whale, refined	lb.	.0940	.0960

Essential Oils

Almond, Bitter, U.S.P.	lb.	$2.50	$2.75
Bitter, F. F. P. A.	lb.	2.25	2.50
Sweet, cans	lb.	.63	.65
Anise, cans, U. S. P.	lb.	1.25	1.30
Bay tins		1.35	1.50
Bergamot, coppers	lb.	4.00	4.10
Artificial	lb.	1.25	1.40
Birch Tar, rect. tins	lb.	.70	.75
Crude, tins	lb.	.14	.17
Bois de Rose, Brazilian	lb.	1.55	1.60
Cayenne	lb.	1.50	1.75
Cade, cans	lb.	.48	.52
Cajeput, native, tins	lb.	.66	.72
Calamus, tins	lb.	5.50	5.75
Camphor, Sassy, drums	lb.	.17	.18
White, drums	lb.	.17	.18
Cananga, native, tins	lb.	1.50	1.65
Rectified, tins	lb.	2.15	2.75
Caraway Seed	lb.	2.10	2.25
Cassia, Redistilled, U. S. P.	lb.	1.20	1.25
Cedar Leaf, tins	lb.	.85	1.10
Cedar Wood, light, drums	lb.	.26	.30
Citronella, Java, drums	lb.	.45	.48
Citronella, Ceylon, drums	lb.	.40	.42
Clove, U. S. P., tins	lb.	1.07	1.10
Eucalyptus, Austl., U.S.P., cans	lb.	.44	.46
Fennel, U. S. P., tins	lb.	1.20	1.30
Geranium, African, cans	lb.	4.00	4.75
Bourbon, tins	lb.	3.75	4.00
Turkish	lb.	2.40	2.60
Hemlock, tins	lb.	1.05	1.10
Lavender, U.S.P., tins	lb.	2.25	5.60
Spike, Spanish, cans	lb.	1.05	1.10
Lemon, Ital., U. S. P.	lb.	2.60	3.00
Cal.	lb.	2.50	—
Lemongrass, native, cans	lb.	.42	.43
Linaloe, Mex., cases	lb.	1.30	1.40
Nutmeg, U. S. P., tins	lb.	1.25	1.30
Orange, Sweet, W. Ind., tins	lb.	1.95	2.00
Italian cop	lb.	2.25	3.00
Distilled	lb.	—	.90
Cal.	lb.	1.75	—
Origanum, cans, tech	lb.	.90	1.25
Palmarosa	lb.	2.40	2.60
Patchouli	lb.	5.00	8.00
Pennyroyal, dom.	lb.	1.40	1.45
Imported	lb.	1.40	1.50
Peppermint, nat., cans	lb.	2.15	2.40
Redis., U. S. P., cans	lb.	2.35	2.60
Petitgrain, S. A., tins	lb.	1.10	1.20
Pine Needle, Siberian	lb.	1.02	1.05
Rose, Natural	oz.	5.25	22.50
Artificial	oz.	2.00	3.00
Rosemary, Spanish, tins	lb.	.56	.75
drums	lb.	.51	Nom.
Sandalwood, E. Ind., U.S.P.	lb.	5.25	5.50
Sassafras, U. S. P.	lb.	.90	1.05
Artificial, drums	lb.	.34	.35
Spearmint, U. S. P.	lb.	1.65	1.70
Thyme, red, U. S. P.	lb.	.69	1.25
White, U. S. P.	lb.	.78	1.35
Vetivert, Bourbon	lb.	8.00	18.00
Ylang Ylang, Bourbon	lb.	3.50	6.00

Aromatic Chemicals

Acetophenone, C. P.	lb.	$1.25	$2.25
Amyl Cinnamic Aldehyde	lb.	2.00	2.25
Anethol	lb.	1.30	1.35
Benzaldehyde, tech.	lb.	.60	.65
U. S. P.	lb.	1.20	1.30
Benzyl, Acetate	lb.	.55	1.00
Alcohol	lb.	.63	.68
Citral	lb.	1.60	3.15
Citronellal	lb.	.75	.80
Citronellol	lb.	1.90	2.15
Citronellyl Acetate	lb.	4.50	7.00
Coumarin	lb.	3.10	3.30
Cymene, drums	gal.	.90	1.25
Diphenyl oxide	lb.	.50	.55
Eucalyptol, U. S. P.	lb.	.58	.60
Eugenol, U. S. P.	lb.	2.00	2.50
Geraniol, Domestic	lb.	.75	2.00
Imported	lb.	2.00	3.00
Geranyl Acetate	lb.	2.00	2.50
Heliotropin	lb.	2.00	2.10
Hydroxycitronellal	lb.	3.50	9.00
Indol, C. P.	oz.	2.00	2.50
Ionone	lb.	3.25	5.50
Iso-Eugenol	lb.	3.00	4.25
Linalool	lb.	1.65	2.25
Linalyl Acetate	lb.	1.70	2.55
Menthol	lb.	3.15	3.25
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	2.10	2.75
Paracresol	lb.	4.50	6.00
Salicylate, U. S. P.	lb.	.40	.45
Musk Ambrette	lb.	4.20	5.00
Ketone	lb.	4.35	5.25
Xylene	lb.	1.25	2.00
Phenylacetaldehyde	lb.	4.80	8.00
Phenylacetic Acid, 1 lb. bot.	lb.	1.85	3.25
Phenylethyl Alcohol, 1 lb. bot.	lb.	4.00	4.50
Rhodinol	lb.	5.75	8.00
Safrol	lb.	.47	.50
Terpineol, C. P., 1,000 lb. drs.	lb.	.23	.25
Cans	lb.	.27	.30
Terpinyl Acetate, 25 lb. cans	lb.	.77	1.00
Thymol, U. S. P.	lb.	1.70	1.95
Vanillin, U. S. P.	lb.	3.10	3.80
Yara Yara	lb.	1.30	2.00

Insecticide Materials

Insect Powder, bbls.	lb.	.21	.24
Concentrated Extract			
5 to 1	gal.	1.40	1.45
20 to 1	gal.	5.25	5.35
30 to 1	gal.	7.60	7.75
Derris, powder—4%	lb.	.33	.38
Derris, powder—5%	lb.	.39	.44
Cube, powder—4%	lb.	.23	.28
Cube, powder—5%	lb.	.28	.33

Gums

Arabic, Amb. Sts.	lb.	.11¾	.12
White, powdered	lb.	.15	.16
Karaya, powdered No. 1	lb.	.12	.13
Tragacanth, Aleppo, No. 1	lb.	2.75	3.00
Flake	lb.	.50	1.00

Waxes

Bees, white	lb.	.39	.42
African, bgs.	lb.	.25	.26
Refined, yel.	lb.	.35	.39
Candelilla, bgs.	lb.	.14	.14½
Carnauba, No. 1	lb.	.43	.43½
No. 2, N. C.	lb.	.39	.40
No. 3, chalky	lb.	.33½	.34
Ceresin, yellow	lb.	.08½	.11
Paraffin ref. 125-130	lb.	.0455	.04¾

Production Section

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, *Oil & Fat Industries.*

Salt-Water Soaps

PURE water possesses a specific weight of 1, freezes at 0°C. and boils at 100°C. With sea water the constants are quite different. It has a specific weight of 1.02-1.03, boils at about 103°C. and freezes at minus 2.5°C. This is of course because of the salt content of sea water. On the average, it contains about 3.5 per cent of dissolved salts, which consist, also in average figures, of about 77-80 per cent sodium chloride, 10-11 per cent magnesium chloride, 4-5 per cent magnesium sulfate, 2-2.5 per cent gypsum or sodium sulfate, and traces of other substances. The amount, as well as the kind of salts, varies with location.

Soaps are salted out of a 4 to 5 per cent salt solution. Thus, the salt content of sea water makes ordinary soap useless in such water. The preparation of special soaps for use in sea water has received considerable attention in the patent literature, but this does not necessarily mean that soaps prepared according to such directions will serve the purpose satisfactorily. The problem is to develop a soap for salt water that will have the typical lathering and cleansing action of regular soap under ordinary conditions. Soaps made from hard fats such as tallow possess scarcely any lathering action in salt water but soaps made from soft fats such as coconut oil and palm-kernel oil, lather fairly well. Rosin soaps lather to some extent in salt water, although less so than the "soft" fats.

The manufacture of salt-water soaps from coconut oil by the cold method could scarcely be any simpler, although the coconut-oil soaps of commerce frequently show significant differences in quality. These soaps prepared by the cold process usually contain about 15 per cent unsaponified oil. When additional lye is used to saponify this balance, the soap becomes brittle, hard and difficult to press. The increased alkali may also cause skin irritation. This may be one reason that soaps made from coconut oil only, are considered irritating to the skin by many people. In order to overcome this objection, attempts have been made to incorporate other animal and plant fats in salt-water soaps. Castor oil, for example, is suitable for the purpose.

Many of the salt-water soaps contain besides coconut oil and palm-kernel oil, additions of rosin or similar materials, as well as a liberal addition of sodium silicate. The proportion of silicate that may be used, varies from 20 to 30 per cent. In America, this type of soap may not contain more than 55 per cent of water. The saponification number of the fats is usually not less than 250, which means that they contain practically all coconut oil and palm-kernel oil.

A soap which lathers well in salt water and can be especially recommended for use on shipboard, is made according to the following formula:

	Parts
Coconut oil	282
Caustic soda, 30° Be.	282
Caustic potash, 30° Be.	85
Sodium Silicate	281
Water	70

An important field of soap consumption is that of the textile industry. Here it is very often the case that detergents must be used in salt-containing waters, such as those in which magnesium sulfate and magnesium chloride are present. Ordinary soaps are useless here, but sulfonates of the fatty acids are stable in such waters. It would therefore seem reasonable to apply the same principle to salt-water soaps and prepare these soaps with the incorporation of sulfonated fatty acids. These latter can either be added as such to the prepared soap, or they can be added to the oil stock at a convenient time. Sulfonated castor oil might be mentioned as a suitable addition. Today there are also available the fatty alcohol sulfates as well as fatty-acid condensates, which are particularly suited for addition to this type of soap.

Other ingredients which induce good lathering power are the saponins. These can be dissolved in the caustic solution and added to the oil stock in this manner. According to French Patent 775,988, a decoction, presumably an extract, is made from mollusks or mollusk

scales, such as oysters and mussels and added to salt-water soap in the proportion of 5 to 10 per cent. The yield of extract or brew is 50 per cent of the weight of mollusks used. The purpose is to increase foaming power.

Additions of various kinds of animal extracts can be made to lower the specific gravity of the soap. Whatever the additions, the important point is the base of coconut oil and palm-kernel oil, unless the synthetic detergents referred to are used. Ohl. *Allgeneine Oel- und Fett-Ztg.* **34,** 464-6 (1937).

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Alcohol Potash Catalysis

Glyceride splitting by reaction with alcoholic potash was studied for olive oil, sesame, linseed, linseed-oil stand oil, tung, and tung-oil stand oil. This is termed alcoholysis, the same as reaction with water is called hydrolysis. Glyceride splitting was found to be rather far advanced before large proportions of glycerine were liberated. This is because of the intermediate formation of mono- and di-glycerides, as shown by acetyl numbers and saponification numbers. The rate of glyceride splitting increased with an increasing water content of the alcoholic solution, and also with increasing potassium hydroxide concentration. The slower the glyceride splitting, the smaller the amount of potassium hydroxide required for complete splitting. H. Kurz. *Fette u. Seifen* **44,** 144-5 (1937).

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Wetting Agent from Suint

Crude or purified wool suint and like substances are treated with hydrogenating or reducing agents so as to hydrogenate the existing double bonds or completely or partly reduce to —CH_2OH groups the existing carboxylic groups, or to obtain both these results at once. The products obtained may be acylated, e.g., converted to acetates, distilled and saponified, to separate them into their constituents. They may be sulfonated to obtain substances having capillary activity. I. G. Farbenind. A.-G. French Patent No. 809,405.

Products and Processes

Textile Soaps

Blended palm soap is a new product available in solid and flake form. The flake form contains 88 per cent of pure dry soap. It is stated that this product, in combination with the usual alkali, can be used for scouring and fulling of woolen goods. The titre on the fatty acids is approximately 37°C. Colgate formula 25 is a blended oil soap, available in solid, bar or flake form. The product is designed to be used for operations ordinarily considered to require the use of olive oil soap, and, it is claimed, has been successfully applied in many textile processing operations. The flake form contains 92 per cent of pure dry soap. The product is pale green in color, and fat stocks show a titre of about 27°C. *Am. Dyestuff Reporter* **26,** 739-40 (1937).

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Improving Rug Cleaners

A carpet-cleaning soap which is satisfactory in other respects can be extended in usefulness by the incorporation of an ink-removing agent. Sodium perborate is used fairly extensively in ink stain removal and should be a very satisfactory addition to soap for this purpose. The presence of ammonia and ammonium soap should also aid in removing stains. *Soap, Perfumery and Cosmetics* **10,** 968 (1937).

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Ethanolamine Textile Agents

Three associated organic compounds which are coming rapidly to the fore in textile processing are the ethanolamines. Triethanolamine is the most important and is a viscous colorless liquid with a faint ammoniacal odor. It is very hygroscopic, has a boiling point of 277°C., and a density of 1.120 at 15°C. It is an excellent emulsifier for fatty bodies and for paraffin. The soaps formed by its combination with free fatty acids have a pH of about 8 and thus have no harmful effect on textile fibers. The oleate soap is a semi-liquid, —completely soluble in water, and possessing marked detergent properties. The ethanolamines are good emulsifiers of mineral oils and may be used to produce textile yarn lubricants in the form of "soluble" oils. They can be used as scouring agents for raw wool in conjunction with soap. A stable emulsion is given by mixing 85 per cent of ethylene dichloride, 10 per cent of oleic acid and 5 per cent of triethanolamine, with an equal volume of water. G. S. Ranshaw. *Chem. Age* **37,** 387 (1937).

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Dispersing Agents

Water-soluble esters of polyhydric alcohols with at least 4 hydroxyl groups, or carbohydrates, with organic sulfonic acids of the aliphatic or aromatic series, are used as dispersing agents. E.g., wool containing lime is cleaned by washing with the mannitol ester of dodecylsulfonic acid to give a product free from calcium soap. Böhme Fettchemie-G.m.b.H. German Patent No. 648,596.

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Oxygenated Soap Powder

Soap powders which incorporate ingredients containing active oxygen such as peroxides, are made by mixing powdered dry soap and the powdered per compound, with or without the addition of other dry detersive substances. These oxygenated soap powders should be finely ground, otherwise the peroxides remain unmixed and may be deposited on textiles, causing serious damage. A method for overcoming this difficulty is as follows:

Grind the soap powder intimately with the oxygen compound and then convert it to flake form by adding water and pressing through rollers by means of a suitable mechanism. These small flakes prevent separation of soap and peroxide, thus

reducing the danger of injuring fabric.

The oxygen-liberating per salts should not be used with a soap powder containing less than 30 per cent fatty acid. The proportion of per compound should be limited to 10 per cent. Such products should be stored in a cool dry place to avoid deterioration. A. N. Ghose. *Indian Soap J.* **4,** 88 (1937).

Reversed Soap

The most recent and interesting development in the search for textile detergents is in the field of "reversed soaps," which are quaternary ammonium compounds with surface active cations. Complex sulfonium and phosphonium compounds are being investigated. The sapamines also belong to this class of reversed soaps. By reacting oleic acid with unsymmetrical diethylethylene diamine, a product is obtained which is claimed to foam in a concentration as low as 1 to 2,000,000. These reversed soaps will precipitate ordinary soap and other compounds containing surface-active anions. They will improve the fastness of dyeing to perspiration and water, although in some cases they render the dyeing less fast to washing. Results have been obtained which may lead to a new technique in dyeing. Harry Zimmerman. *Canadian Chem. and Met.* **21,** 367 (1937).

Dry Saponification

A stable soap of good quality is manufactured by mixing a fatty acid at a temperature slightly above its melting point, with an amount of calcined alkali carbonate which is approximately twice the amount theoretically necessary for complete saponification. Excess of soda is converted to sodium bicarbonate during the reaction. After a homogeneous mixture has been obtained by mixing, 2-50 per cent of water or of a suitable salt solution, is added, calculated on the fatty acid content. In the case of soda soaps, the amount is preferably 20-30 per cent; with potash soaps it is 2-5 per cent. Addition of water brings about more rapid saponification and leads to products which are entirely homogeneous. The products of the reaction may be mixed as desired with liquid or solid soap, sulfonated oils, per compounds or other of the usual additions for soap. Adolf Welter. British Patent No. 473,220.

Abrasive Cleanser

A nonalkaline, soap-free cleansing agent consists of 8 parts by weight of the sodium salt of cetyl alcohol sulfonic acid, 67 parts of colloidal kaolin and 25 parts of a 3 per cent gum tragacanth solution. To this, finely powdered cork may be added. The fatty alcohol phosphates may be used in the same way. J. Reichstein. Swiss Patent No. 186,960; through *Deutsche Parfümerie Ztg.* **23,** 408 (1937).

Phenolic Soap Products

Phenolic products primarily adapted for use as soaps, emulsifying and germicidal agents are obtained by heating an alcohol containing a primary alcohol group and a hydrohalide or sulfuric salt of a phenolic amine obtained by condensing a phenol, formaldehyde and a secondary amine. Not more than 1 molecule each of the phenol and formaldehyde are used for each molecule of secondary amine. The term phenol, includes mono- and polycyclic phenols and Novolak resins that are soluble in dilute caustic soda. Röhm & Haas Co. British Patent No. 468,399.

Hydroxysulfonic Detergents

Cleansing agents which even when boiled with acids remain practically unsaponified and in clear aqueous solution or emulsion, and which even at low temperatures are relatively stable to the substances giving hardness to water, are smoothly obtained by subjecting olefinic hydrocarbons having 1 double linkage at the end of the chain and containing at least 8 carbon atoms, to sulfonation with strong liquid sulfonating agents. Fritz Guenther and Hans Haussmann. U. S. Patent No. 2,094,451.

Special Shampoo Liquids

Formulas for special shampoo liquids other than potash soap solution are as follows:

		Parts
1.	Olein	220
	Coconut oil fatty acids	160
	Triethanolamine	200
	Alcohol	110
	Water	110
		Parts
2.	Liquid soap 25%	425
	Lamepone PH A	35
	Special Turkey red oil	25
		Parts
3.	Sapamin citrate	15
	Alcohol, 10%	75
	Saponin	1
	Glycerine	1

Eckmann. *Riechstoff Industrie und Kosmetik* **12,** 204-5 (1937).

Peroxide Washing Agents

Pyrophosphoric esters of higher aliphatic alcohols are treated with hydrogen peroxide or inorganic per salts to give stable compounds useful as combined washing and bleaching agents. Böhme Fettchemie-Ges. m.b.H. German Patent No. 649,322.

Sulfonated Glycerine Product

A cleansing agent is made by the reaction of 1 molecule of a fatty oil, 2 molecules of almost anhydrous glycerine and more than 3 molecules of fuming sulfuric acid; this product is neutralized. An example is obtained by the reaction of 216 parts of coconut oil, 64 of glycerine and 526 of sulfuric acid (102.8 per cent); the whole is then neutralized with caustic soda solution. The product is used in making soaps, dentifrices, etc. Colgate-Palmolive-Peet Co. French Patent No. 810,847.

Glycol Spotting Agent

Ethylene glycol is miscible with water and various other solvents, and will dissolve many organic materials. In general it is a better spotting agent than glycerine. Since it is especially effective with tannin materials, the addition of a little potassium fluoride enables it to remove spots caused by iron-tannin inks. Oxalic acid or tartaric acid can also be used with it. *Textile Colorist* **59,** 830 (1937).

Foam Bath Compounds

Foam bath agents are available in both powder and liquid form, the former being more popular, but the latter lending themselves more readily to the production of a really first-class product, selling at a correspondingly higher price. Although the major problem is to produce an adequacy of bubbles at the lowest possible cost, another important consideration is the imparting of a reasonable measure of stability to the foam, once it has been formed. The diluting of an effective foam-producing agent with a soluble filling material, is the simplest solution, but the ideal practice is to select a filler that will also function as a stabilizer by helping to increase the strength and rigidity of the bubble walls. It is for this reason that liquid preparations offer more scope to the ingenuity of the chemist than the powders, for in a liquid preparation substances of a sufficiently viscous character can more readily be incorporated.

Soaps, including triethanolamine soaps, are not suitable as bases for foam bath preparations. Under the best laboratory conditions, the results obtained with them are poor. The best are coconut oil soaps, but the bubbles formed, although large, are of poor stability.

Potential constituents may be summarized as follows:

Powders

(a) Foaming base. Sodium lauryl sulfate, sapamines, Lamepon K P, and saponins.

(b) Fillers. Sodium carbonate, sodium chloride, magnesium sulfate, sugar etc.

The filling materials must be compatible with the foaming agent and should also be readily soluble. The latter point renders the incorporation of powdered gums rather unsatisfactory.

Liquids

(a) Foaming base. Triethanolamine lauryl sulfate, quillaia or guaiac saponins in solution.

(b) Fillers. Sulfonated oils, diethylene glycol, sodium hexametaphosphate, solutions of various gums, sugars and gum substitutes.

Devising a suitable formula from the above is only a matter of selecting the best foaming agent for the purpose, bulking it with the most satisfactory filling materials, perfuming with a light floral odor, and perhaps tinting with a trace of fluorescein or other dyestuff. The incorporation of hygroscopic materials such as saponin in too high a proportion must be avoided in powdered products.

Foaming agents should be tested in an open stoppered sink, not in a test tube or similar confined receptacle. The layer of foam can therefore be observed as to depth and stability under conditions approximating those in which it will be used. E.g., a coconut soap will form a perfect lather when shaken in a test tube, but if water is run on it in a sink the result will be definitely poor. S. P. Jannaway. *Perfumery & Essential Oil Record*, **28**, 398-401 (1937).

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Kreis Reaction

The Kreis reaction for detecting rancidity in oils and fats by spectroscopically determining the color changes caused by the formation of epihydrinaldehyde in the fat gives, even in its variously modified forms, only approximate qualitative results. For exact determinations the following method is proposed:

In a small porcelain dish add 2 cc. of fat or oil dropwise to 10-12 grams of granulated silica gel in such a way that the fat is adsorbed immediately by the gel. Transfer the gel to a calcium chloride tube containing a layer of glass wool and closed with a stopper through which passes a glass tube, the end of which, drawn out to a capillary, is immersed in a solution prepared by dissolving 0.2 gram of phloroglucinol in 100 cc. of alcohol or 20 per cent hydrochloric acid. Pass a current of moist hydrogen chloride through the tube. The phloroglucinol solution becomes colored to an extent that depends on the degree of rancidity of the fat. The color can be examined spectrographically. Richard Neu. *Chem.-Ztg.* **61**, 733-6 (1937).

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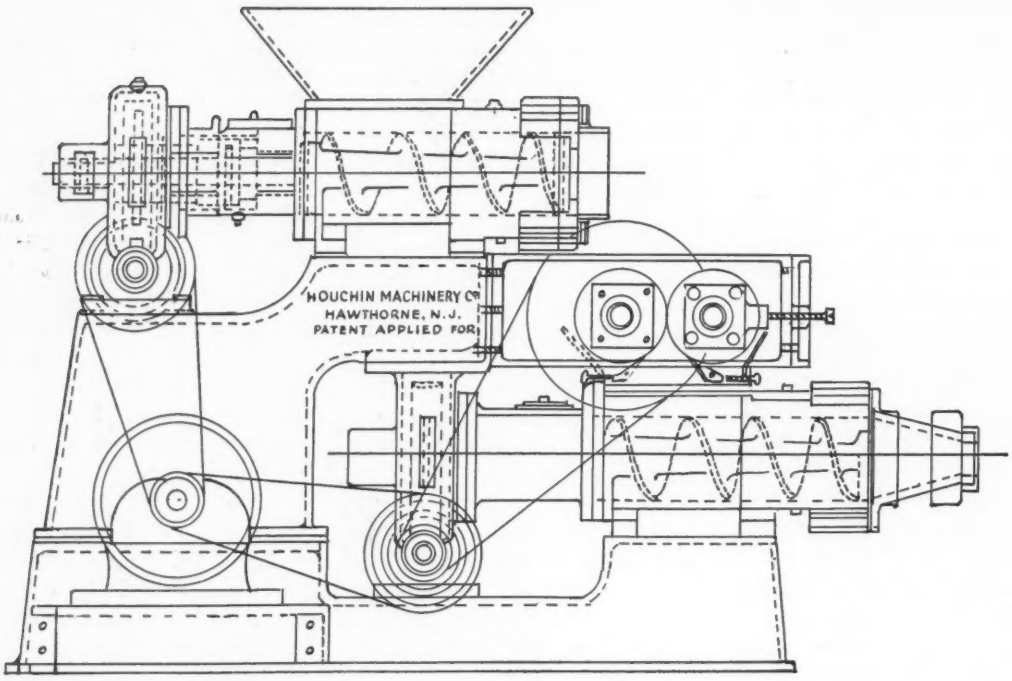
Spent Sulfite Lye in Soap

Spent lye from sulfite cellulose is a cloudy black liquid unsuited for use in soap manufacture. However, it is possible to bleach and clarify this lye so that it can be used to make a satisfactory soap. Soap prepared with this lye is adapted to use with salt water. The crude spent lye is caused to react with chloride of lime, preferably in a colloid mill. The mixture is then neutralized with an acid which forms an insoluble calcium salt and the precipitate is separated by centrifuging or filtering. The separated lye is treated with oxygen or hydrogen peroxide, concentrated to about 32°Be., and incorporated with a ready made but still liquid soap.

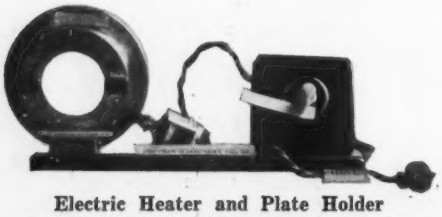
E.g., 100 kg. of sulfite cellulose spent lye of 6°Be., are mixed with 8-10 kg. of chloride of lime and actively homogenized in a colloid mill. The temperature rises to 55-65°C. After cooling, the mixture is neutralized with 10 per cent sulfuric acid. The precipitate is removed by centrifuging or filtering. The liquid consists of a refined sulfite cellulose spent lye of a clear yellow, or yellow-red color, with a slightly alkaline or neutral reaction. To the treated lye is added 3 per cent hydrogen peroxide with stirring, in the proportion of 0.5-1 per cent of the lye. The oxidized lye is then boiled down to a concentration of 32°Be., preferably in a vacuum. From 20 to 30 kg. of the concentrated lye are added to 80 kg. of a soap solution of about 10 per cent fatty acid content. The concentrated lye is heated to 80-90°C. and intimately mixed with the soap solution at the same temperature. The mixture is introduced into a cooling apparatus and filled into molds. To avoid efflorescence, dichlorohydrin, glycol or polyglycol can be added in the proportion of 1-2 per cent of the lye. Karl Braun and Hermann Plauson. British Patent No. 470,254.

HOUCHIN MACHINERY CO., INC. HAWTHORNE, N. J.

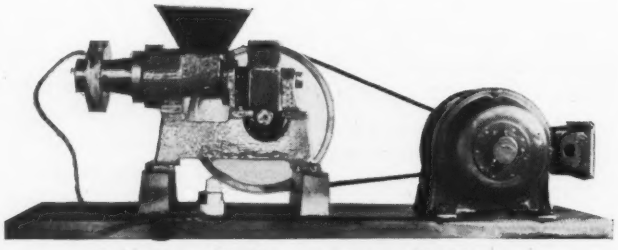


COMBINATION PLODDERS
With Double Head and Milling Attachment With Motor

Soap passing through the first time produces ribbons of soap. Second passing produces a fine finished, well compressed bar of Soap. For the second passing, remove Short Head on Second Plodder, bring Long Finishing Head in place. This Head is fitted with our Electric Heater and Plate Holder. A small stream of water passing through Plodder Cylinders and Rolls of Mill keeps the Soap cool, preventing the Soap from blistering. There is no dropping of Soap. The machine is very easily cleaned. It is excellent for short runs of Soap and saves Horse-Power.



Electric Heater and Plate Holder
By using this unit instead of steam, gas or lamp a uniform heat can be maintained. No more blistered soap. Made to fit all Plodders.



Laboratory Plodder, complete with Motor, Electric Heater, and Plate Holder.

Soybean Lecithin in Soaps

THE residue left after extraction of oil from soybeans with benzine or a similar solvent is often called "soybean lecithin" but is more correctly designated soybean phosphatides. This product should be of interest to the soap manufacturer, since this fat-like material or lipoid, is easily saponifiable.

The preparation of highly purified soybean phosphatide is a tedious process and makes the purified product too expensive to be applicable in soap work. But in this connection such purification is unnecessary. All that is necessary is to centrifuge to separate oil, and dry under reduced pressure to remove most of the water. The resulting product contains a mixture of phosphatides, soybean oil and its fatty acids, water, coloring matter, sterols and other admixtures from the beans, so that the material is not completely saponifiable.

In trying to form an opinion as to the usefulness to the soap boiler of this dark brown, salve-like material, the first step would ordinarily be to determine a value for the saponification number. A definition of this is the number of milligrams of potassium hydroxide required to saponify one gram of fat, including any free fatty acids which may be present. The acid number is the milligrams of potassium hydroxide necessary to combine with the free fatty acids in one gram of substance. The difference between these two values therefore gives the ester number. In the case of pure fats or fat mixtures, it is possible to get a good idea as to the nature of the raw material from these constants, especially if the saponification number of the pure fatty acids, leading to a calculation of their molecular weight, is available.

An equation for the saponification of fat shows that 1 molecule of fat reacts with 3 molecules of potassium hydroxide to form 3 molecules of soap and 1 molecule of glycerine. In saponification of pure lecithin, 1 molecule of lecithin reacts with 3 molecules of potassium hydroxide to form 2 molecules of soap, 1 molecule of glycerine monopotassium phosphate, and 1 molecule of choline. However, soybean phosphatides contain not only lecithin, but also cephalin and very probably other phosphorus compounds of an organic nature. The reaction with lecithin is useful, however, in that it shows the difference between that and the saponification of soap. In the latter case, all of the alkali is used to produce soap, but in saponification of lecithin, one-third of the alkali is used in forming a partially neutralized phosphoric acid ester of glycerine, having the formula $C_3H_5(OH)_2OHKPO_3$.

In the saponification of lecithin it becomes a question of whether 3 molecules or 4 molecules of potassium hydroxide are required to saponify 1 molecule of lecithin. If 4 molecules of alkali react, the equation is: 1 molecule of lecithin plus 4 molecules of potassium hydroxide give 2 molecules of soap plus 1 molecule of glycerine plus 1 molecule of dipotassium phosphate plus 1 molecule of choline.

It would be difficult on a practical basis to find out which of these two reactions occur, because of the complexity of the impure material. However, fatty acids and phosphoric acid can be determined in the crude phosphatides. Total fatty acids are determined by saponification, splitting of the soap, extraction with ether, and determination of unsaponifiable in the extract. Phosphoric acid is determined as phosphorus, in which one assumes that all of the organic phosphorus goes into the phosphoric acid residue, which may not be 100 per cent true.

When dealing with a crude mixture like that described above, it is necessary to separate the soybean oil fraction from the phosphatides. This can be accomplished by using acetone as a solvent. Soybean oil is very readily soluble in cold acetone, while the phosphatides dissolve only with difficulty. The small fraction which dissolves in the acetone can be determined in the oil, but as a rule the amount of phosphatide removed by the acetone is so small that it can be ignored.

The saponification number of the phosphatides which have been treated with acetone to remove oil, is about 215, usually lying between 210 and 220. The fatty acids present amount to about 70 per cent, with a saponification number of 205; phosphoric acid, when total phosphorus is calculated as phosphoric acid, is about 12.6 per cent. For 700 mg. of fatty acids in 1 gram of soybean phosphatides, 143.5 mg. of potassium hydroxide are required; for 126 mg. of phosphoric acid converted to monopotassium phosphate, theoretically 71.97 mg. of potassium hydroxide are required. The sum of these two gives 215.47 mg. of potassium hydroxide, which corresponds to the practical figure found of an average of 215. This proves that the reaction between phosphoric acid and potassium hydroxide results in the formation of monopotassium phosphate, KH_2PO_4, and not dipotassium phosphate, K_2HPO_4. It is therefore possible to arrive at constants for a soybean oil—soybean phosphatide mixture by separating an acetone-soluble fraction and an acetone-insoluble fraction, determining phosphorus in the latter and using this to calculate the amount of phosphoric acid originally bound. *R. D. Seifensieder-Ztg.* **64,** 802-3 (1937).

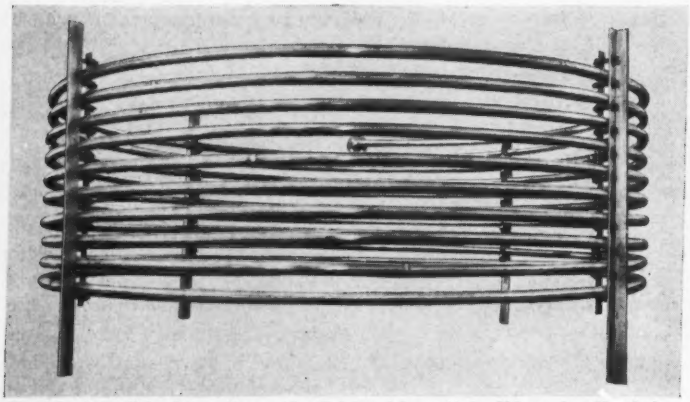
Detergent

Soap is mixed with metaphosphoric acid or a water-soluble salt of the acid. An alkali metal salt of a sulfonated alkyl compound containing 10-18 carbon atoms in the alkyl group may be added. Rumford Chemical Works. French Patent No. 810,958.

Removing Oily Substances

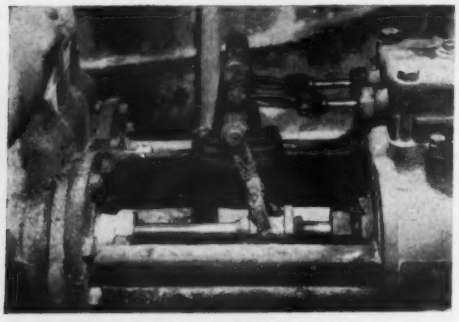
Soap for removing axle grease, oily inks and colors, and varnish, as in cleaning clothes, consists of a hydrated double stearate of potassium and sodium, calcium carbonate and aqueous glycerine. L. Moulin. Belgian Patent No. 420,061.

Don't let **CORROSION** *thrive in YOUR PLANT!*



Monel heating coil for fatty acid saponifier. Fabricated from 1¼ in. IPS seamless Monel pipe, 288 lin. ft. Coil is 3 ft. 6 in. high, has 10 turns and measures 9 ft. in diameter. All tube connections are welded. Made by Cornell & Underhill, 1300 Jefferson Street, Hoboken, to design by Allen Porter Lee Inc., Chemical Engineers, 136 Liberty Street, New York, N. Y.

Pure Nickel coils for glycerine still. Manufactured from 2 in. IPS seamless tubing (475 ft.—1,952 lbs.) by Midwest Piping & Supply Co., Inc., St. Louis, Mo., for Hamler Boiler & Tank Works, Chicago, for installation in a large Middle Western soap plant.



(Right) Monel headers, return bends and tubes furnished by the Babcock & Wilcox Company, 85 Liberty Street, New York, N. Y.

• • •

(Left) Monel pump rod after 3 years' continuous service handling hot fatty acids.

Put Nickel and Monel on the job of keeping glycerine and fatty acid products clean . . .

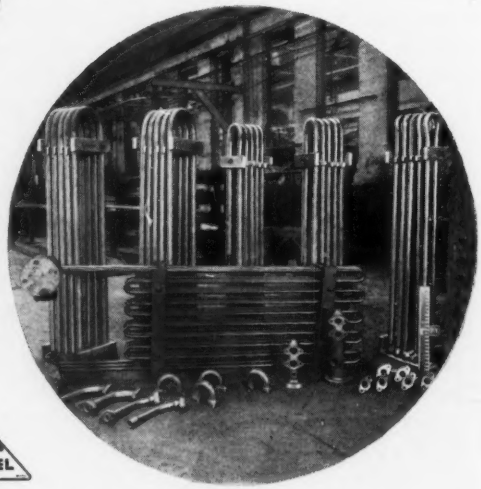
CORROSION—a hard bug to shake off in equipment that touches dilute sulfuric acid and strong caustic. But a bug you HAVE to shake off if you're going to keep your products pure.

That's why the four installations represented here are Nickel or Monel*. Both resist corrosion. In addition they have what's needed to get them into coils, saponifiers, pipe lines, and pump rods: They are readily fabricated . . . threaded, brazed or welded. No heat treatment required after welding.

Strength and toughness greater than structural steel, high heat transfer properties. . . . More reasons why smart plant operators cut costs with Nickel and Monel.

Most pipe bending plants fabricate Nickel and Monel. Or write us for instructions on fabrication. Ask for our new technical bulletin "Design and Construction of Heavy Equipment in Monel, Nickel and Inconel". Address:

THE INTERNATIONAL NICKEL CO., INC.
67 WALL STREET NEW YORK, N. Y.



MONEL

*Monel is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. This alloy is mined, smelted, refined, rolled, and marketed solely by International Nickel.

INCO MONEL

New Synthetic Detergent Compounds

DEVELOPMENT of products related to the well-known sodium alcohol sulfates or sodium alkyl sulfates is that of a series of purely synthetic, secondary aliphatic alcohols containing from 10 to 21 carbon atoms in which the hydroxyl groups are located on carbon atoms near the center of the hydrocarbon chains. By sulfation of these alcohols and neutralization of the resulting acid alcohol sulfates, a group of sodium *secondary*-alcohol sulfates was obtained which have been found to possess very remarkable properties of wetting and penetration. The group of products has been made available in water solution under the name "Tergitols," the different products being given different numbers. Representative surface-active products may be divided into 2 classes and their chemical types shown as follows:

Type No.	*Formula*
A—1	R—COONa
A—2	R—SO_4Na
A—3	R—$CONHC_2H_4SO_4Na$
A—4	R—$COOC_2H_4SO_4Na$

Type No.	*Formula*
B—1	R'_2CHSO_4Na
B—2	R'OOC—CH_2 | R'OOC—$CHSO_4Na$
B—3	R'Ar—SO_3Na

In the formulas, R stands for a fatty alkyl group, R' a primary or secondary nonfatty alkyl group and Ar an aryl or aromatic group. The A type of compounds is derived from fatty sources. The water-soluble grouping in these compounds is a primary one, located at the end of the nonpolar portion of the molecule. The B type of compounds includes secondary alcohol sulfates, sulfated esters of higher alcohols and dibasic acids, and numerous alkyl derivatives of aryl or aromatic sulfonates. Each of these types contains its polar or water-soluble group in a secondary position, with the nonpolar portion extending from it in two directions.

Members of the A group possess remarkable detergent and emulsifying properties, resembling soap or type A-1 in this respect. Members of the B group are somewhat inferior in this property, but they are superior as wetting agents and penetrants. The different products of the B type vary in wetting efficiency with the pH of the solution, some covering a wide range and some being better suited to the neutral range.

A comparison by turbidimetric methods of the lime-resistance of the Tergitols with other types of surface-active compounds gave the following results:

Wetting-agent Type	*Solution Hardness as $CaCO_3$, p.p.m.*
A—1 (olive oil soap)	25
B—3	100
B—1 (Tergitol 7)	100
B—2	888
A—2	1070
B—1 (Tergitol 4)	1380
A—3	5630
B—1 (Tergitol 08)	End point unobtainable

Preliminary tests indicate that lime-soap dispersing action superior to that of the fatty alcohol sulfates may be obtained with the secondary alcohol sulfates. When surface-active compounds of the type indicated below were added to olive-oil soap solutions, lime resistance was as follows:

Olive-oil Soap Conc. %	*Wetting Agent Conc.* %	*Hardness as $CaCO_3$ at Nephelometric End Point*			
		A—3	A—2 (*Tergitol 4*)	B—1	B—1 (*Tergitol 7*)
		Parts per million			
0.50	0.05	169	186	160	211
0.50	0.10	163	197	196	205
0.50	0.25	165	213	236	217
0.50	0.50	155	201	264	223

A blank determination on olive oil soap alone gave a value of 136 p.p.m. The ability of Tergitols 4 and 7 to increase the tolerance of soap solutions for calcium hardness is clearly indicated by these values. As the ratio of wetting agent to soap is increased, the lime-soap dispersing action of Tergitol 4 becomes superior to that of Tergitol 7. The ability of these compounds to prevent the agglomeration and precipitation of hard-water soaps has already been shown to possess practical utility in such detergent operations as laundering and shampooing. B. G. Wilkes and J. N. Wickert. *Ind. Eng. Chem.* **29**, 1234-9 (1937).

Glycerine and Glycol Tests

A qualitative color test for glycerine is as follows: Place the following in a 6-inch test tube in the order given: (1) 3 cc. of the sample solution, (2) 3 cc. of a 10 per cent aqueous solution of catechol, freshly prepared, and (3) 6 cc. of concentrated sulfuric acid. Heat gently for about 30 seconds. If glycerine is present, a blood-orange color will quickly appear at about 140-145° C. No color is formed with ethylene glycol, diethylene glycol and ethyl alcohol. Acrolein interferes by giving a purple flocculent precipitate. Other polyhydric alcohols give colors as follows:

Alcohol	*Color*
Propylene glycol	Faint pink
Triethylene glycol	Faint pink
Trimethylene glycol	Dark brown
Glycerine	Blood orange
Pentaerythritol	Dark purple-red
Erythritol	Faint pink
Mannitol	Red-orange
Sorbitol (neutral)	Blue
Sorbitol (H_2SO_4)	Faint pink

Aldehydes, in general, give color reactions with catechol and sulfuric acid, but with the exception of acrolein, are not apt to be present. A. G. Hovey and T. S. Hodgins. *Ind. Eng. Chem.*, Anal. Ed. **9**, 509-11 (1937).

Synthetic Glycerine

In a paper delivered recently to the French Academy of Science by Georges Darzens, the announcement was made that it is now possible to prepare diethoxyacetone easily, cheaply, and with high yields,—sufficiently so at least, to form an economic and possibly competitive process for the manufacture of synthetic glycerine. It is understood that large-scale tests on the method are in progress. *Chem. Trade J. & Chem. Engineer* **101**, 498 (1937).

New Patents

Conducted by

Lancaster, Allwine & Rommel

Registered Attorneys

PATENT AND TRADE-MARK CAUSES

402 Bowen Building,
Washington, D. C.

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine and Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,097,737, Detergent Composition, Patented November 2, 1937, by Oscar A. Pickett and Arthur L. Osterhof, Wilmington, Del., assignors to Hercules Powder Company, Wilmington, Del. A clear, liquid detergent composition comprising 50-80 per cent of a mixture of an alkali metal soap and a detergent selected from the group consisting of aliphatic amine soaps, sulfonated oils and mixtures thereof; 10-45 per cent pine oil and 5-30 per cent water; the mixture of alkali metal soap and selected detergent consisting of 50-95 per cent of the alkali metal soap and 5-50 per cent of the selected detergent, and the water and pine oil being relatively proportioned so as to form a clear solution when all the ingredients are mixed.

No. 2,097,517, Hypochlorite Composition, Patented November 2, 1937, by Charles B. Durgin, Anniston, Ala., assignor, by mesne assignments, to Monsanto Chemical Company, St. Louis. A hypochlorite composition comprising a calcium hypochlorite compound and sodium metaphosphate, the metaphosphate being present in such proportion as to render the hypochlorite soluble in alkaline solutions.

No. 2,098,607, Cleaning and Polishing Composition, Patented November 9, 1937, by Lowell C. Allen and Bryan B. Doughty, Belleville, Ill. A liquid composition for use in impregnating cloth to impart surface cleaning and polishing activity thereto, the composition comprising the resultants of a mixture of approximately 95 per cent of water, 3 per cent of paraffine oil, 1 per cent of vinegar, one-half per cent of turpentine, and one-half per cent of linseed oil.

No. 2,098,836, Insecticide, Patented November 9, 1937, by Ivan L. Ressler, Niagara Falls, N. Y., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. An insecticidal composition containing nicotine and a hydrophilic polyvinyl compound.

No. 2,098,942, Protection Against Parasitic Attack, Patented November 16, 1937, by Merlin Martin Brubaker, Lindemere, Del., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. A composition of matter suitable for protecting materials against parasitic attack comprising a dispersion of a parasiticide in a solution of a salt of a polymeric amino-nitrogen containing body substantially insoluble in water and in 5 per cent aqueous ammonia but soluble in at least the stoichiometrical amount of 2 per cent aqueous acetic acid and capable of forming a coherent film therefrom.

No. 2,099,109, Para-cresol from Tar Acid Mixtures, Patented November 16, 1937, by David F. Gould, Riverton, N. J., assignor to The Barrett Company, New York, N. Y. A process of purifying para-cresol-oxalic-acid addition compound contaminated with tar acids other than para-cresol, which comprises slurrying the impure addition compound with a non-aqueous solvent for other tar acids at an elevated temperature such that substantial dissociation of the addition compound takes place, cooling the heated mixture and separating purified crystalline para-cresol-oxalic-acid addition compound therefrom.

No. 2,099,214, Sulfuric Esters of Unsaturated Higher Alcohols, Patented November 16, 1937, by Walter H. McAllister, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio. The process of making a sulfuric ester of an unsaturated higher aliphatic alcohol, which comprises treating the higher alcohol with the addition product formed by treating dioxane with a sulphating agent selected from the group consisting of sulfur trioxide and chlorosulfonic acid, without substantially saturating the double bond.

No. 2,099,484, Soap Appliance, Patented November 16, 1937, by Lynde De F. Hokerk, Utica, N. Y., assignor to Kerk Guild, Inc., Whitesboro, N. Y. A toilet article for personal use in bathing consisting of a body of soap having a horizontal opening extending through it from one side to the other, and a substantially endless flexible suspension member forming an elongated loop of sufficient size to pass over the head of a person, the suspension member having a portion passing through the opening in the body and the side portions of the loop being spaced from each other from the sides of the body to the top of the loop when the toilet article is in use thereby completely exposing the body of soap for use without the suspension member interfering with the free use of the soap.

No. 2,099,743, Water Softener, Patented November 23, 1937, by Ellwyn C. Kroeger, Newton, Iowa assignor to The Maytag Company, Newton, Iowa. A water softener consisting of an intimate mixture of sodium meta silicate and sodium carbonate in approximately the relative proportions of 50 to 85 per cent of sodium meta silicate and 15 to 50 per cent of sodium carbonate.

No. 2,099,826, Insecticide, Patented November 23, 1936, by Paul S. Schaffer and Herbert L. J. Waller, Washington, D. C., dedicated to the free use of the People of the United States of America. An insecticide containing as its essential active ingredient a dialkylacridan.

No. 2,100,047, Process for Soap, Patented November 23, 1937, by Karl Braun, Berlin-Frohnau, and Hermann Plauson, Berlin, Germany. A process of manufacturing clear soap with sulphite cellulose spent lye, which consists in chlorinating such lye, thereafter neutralizing the treated lye with an acid, then removing the precipitated matter to obtain clear lye,oxidizing the lye, dehydrating the same, and thereafter incorporating soap to give the completed products.

No. 2,100,146, Soap from Marine Animal Oils, Patented November 23, 1937, by Sigval Schmidt-Nielsen, Trondhjem, and Arne Flood, Larvik, Norway. Process for the manufacture of soaps from unoxidized and unhydrogenated marine oils comprising the step of heating the marine oils without added catalysts and in the absence of oxygen to a temperature between about 250° C. and 300° C. in closed vessels, the heating being continued for a period of time not less than 48 hours so as to bring about a substantial decrease of the iodine number by intramolecular saturation of the glyceride molecules and subjecting the resulting product to saponification by the aid of added alkali.

No. 2,100,274, Refining Oils, Patented November 23, 1937, by Benjamin Clayton, Houston, Tex., Walter B. Kerrick, Los Angeles, and Henry M. Stadt, Glendale, Calif., assignors, by direct and mesne assignments, to Refining, Inc., Reno, Nev. A process for the purification of vegetable and animal oil containing free fatty acid,

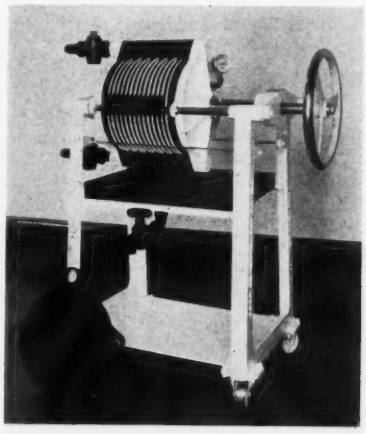
(*Turn to Page* 143)

New Equipment

IF YOU want additional information on any of the items described below or if you want any of the bulletins, catalogs, etc., write to the MacNair-Dorland Co., Inc., 254 West 31st St., New York, mentioning the number of the item.

425—New Disk Filter

Ertel Engineering Corp., New York, has just introduced a new hard rubber asbestos disk filter de-



signed principally for liquids which, upon contact with metal, are liable to contamination or to contaminate the filter. Liquids passing through the Ertel hard rubber filter do not touch anything but hard rubber, and therefore do not take on a metallic taste, or corrode the filter. The construction of the filter is, in general, similar to the Ertel Bronze asbestos disk filter. It is built in sizes to handle from five to thirty gallons a minute.

—— ♦ ——

426—New Welded Dryer

Lukenweld, Inc., division of Lukens Steel Co., Coatesville, Pa., has developed a new type of welded steel dryer for use in the soap, chemical and other industries. The dryer is operated with steam, or other heating media, and is said to be capable of providing controlled steam distribution at pressures up to 150 lbs. All sizes up to 15 feet in diameter, of either single shell or double shell construction, can be manufactured. The dryer is said to be lighter in weight than previous types.

—— ♦ ——

428—Givaudan Catalog

Givaudan-Delawanna, Inc., New York, has just issued a catalog listing all the more important aromatic materials, with prices, which it produces. Copies are available on request.

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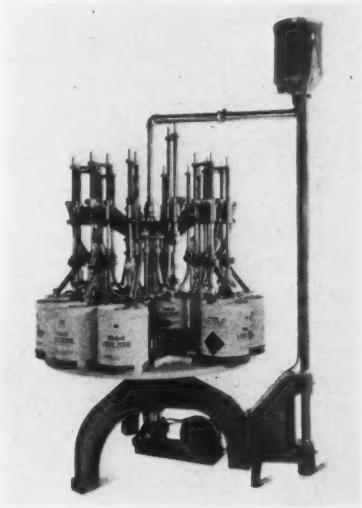
429—Supervisors' Manual

Elliot Service Co., New York, has just published a book designed to enable employers to deal with employee grievances intelligently and effectively. It is called "How to Handle Grievances," and is written by Glenn Gardiner, author of books and articles on industrial management, and personnel relations. Prices will be furnished on request.

—— ♦ ——

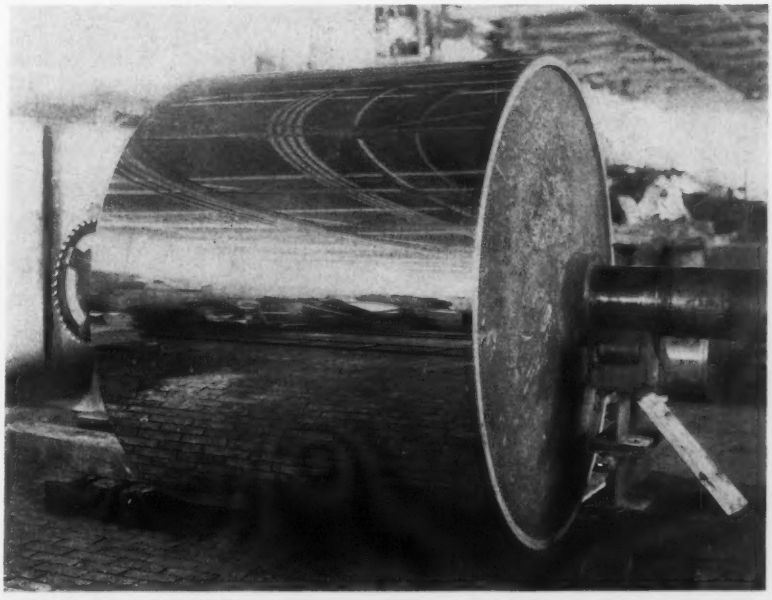
427—New Filling Machine

Karl Kiefer Machine Co., 920 Martin St., Cincinnati, has just announced a new machine designed for filling five-gallon cans and carboys of insecticides, disinfectants, stock sprays, liquid soaps, etc. A supply tank with automatic float valve control is mounted on top of the column of the machine. From here the prod-



uct is piped to the center where it feeds twelve filling stems, operating on gravity pressure. An operator places each can on the table and lowers the stem into the container by means of a lever which locks itself into place. The table is then turned to bring the next stem before the operator, and so on. By the time the first can has made one round, it is filled and may be removed and re-

(*Turn to Page* 133)



The Newer Detergents

(*From Page* 33)

facturing these products in their own plants. Some firms are operating under license and some have one or more patents, either developed or purchased. Perhaps others are merely blending, from purchased products, but this does not appear to be so in every case. As yet, no legal action has been taken for infringement in any case of this kind.

In connection with the validity of these and all other patents, there are many points to be considered, including common knowledge, prior and related arts, etc. Some firms claim to have made "sulfonated" sperm oil, or spermaceti, many years ago. Could this be considered an anticipation of the present patents? Certainly the *idea* of sulfonating cetyl alcohol, and using it in detergent processes, is not new. Then too, neither esterification on sulfonation processes are new. As a last analysis, it is up to the courts, and the opinion of the individual judge or judges handling the case. The actual decision is based upon the facts, theories, hypotheses and discussions as presented by the litigants and their counsels.

No matter whether or not the patents are eventually declared valid and sustained by the courts, the case will be a very expensive one to fight out to a finish. About the only hope for the smaller manufacturer to carry this litigation through the courts to a successful decision, is to combine with others interested in the manufacture of products of this type. It is no secret that such cooperation has been discussed.

On account of the importance of the higher fatty and other alcohol compounds in the wetting and detergent industry at this time, considerably more patents covering these products, their use and manufacture, will be covered in the review to follow than with the less important classes of detergents, etc.

The following is a very incomplete list of some of the names of the fatty alcohol products now on the market, particularly abroad, with some notes regarding their composition.

Acorit.

Amalgol.

Avitex AD contains oleyl alcohol.

Avitex C.

Avitex SF contains stearyl alcohol.

Avitex W contains stearyl alcohol.

Brilliant Avirols, as a group, contain alcohols with longer chains than the Gardinols and their main use is in textile finishing, etc. Some Brilliant Avirols may be mixtures of a sodium salt of one or more higher fatty alcohol sulfate with the same or another free fatty alcohol.

Brilliant Avirol L 142 is a mixture of cetyl and stearyl sodium sulfates.

Brilliant Avirol L 144 may be a mixture of Gardinol WA and oleyl alcohol.

Brilliant Avirol L 168 contains mainly the sodium salt of technical stearyl sulfate. Probably also contains lauryl alcohol.

Brilliant Avirol L 200.

Cetol Wax.

Cetyl alcohol is hexadecyl alcohol or 1-hexadecanol, C_{16}, or $CH_3(CH_2)_{14}CH_2.OH$.

Dodecanol is lauryl alcohol.

Dodecyl alcohol is lauryl alcohol.

Duponol LS contains oleyl alcohol.

Duponol ME contains lauryl alcohol.

Duponol WA contains lauryl alcohol.

Florinat VP.

Gardinol CA is the sodium salt of technical oleyl alcohol sulfate. Also see Gardinol I and LS, and Sulfonated Ocenol.

Gardinol I contains the sodium salt of technical oleyl alcohol.

Gardinol LS is the sodium salt of technical oleyl alcohol sulfate. It may contain more of the dodecyl alcohol compound than Gardinol CA.

Gardinol R is probably the sodium salt of technical lauryl sulfate. Also see Gardinols SE and W, and Sulfonated Lorol.

Gardinol SE is probably the sodium salt of technical lauryl sulfate.

Gardinol WA is the sodium salt of technical lauryl alcohol sulfate.

Hexadecanol is cetyl alcohol.

Hexadecyl alcohol is cetyl alcohol.

Homogenite B.

Homogenite W.

Homogenol WW contains stearyl alcohol.

Inferol 229 B.

Inferol 229 BNS.

Inferol 229 G.

Inferol 229 W.

Lanaclarin LM.

Lanaclarin LT.

Lanaclarin MK.

Lanette Wax is technical stearyl alcohol, but contains some cetyl alcohol. Made by hydrogenating stearin. It is a solid waxy material and is used in textile finishing, etc.

Lanette Wax U is a special mixture which contains an emulsifier. It is used in textile finishing, waterproofing, etc.

Lauryl alcohol is dodecyl alcohol or *n*-dodecanol, C_{12}, or $CH_3(CH_2)_{10}CH_2.OH$.

Lissapol A.

Lissapol AF.

Lissapol AT.

Lissapol C.

Lorol special is a purified grade of Lorol technical, containing a higher percentage of dodecyl alcohol.

Lorol sulfate is the sodium compound of technical lauryl sulfate.

Lorol technical is technical dodecyl or lauryl alcohol, obtained by the hydrogenation of coconut oil or its free fatty acids. It is a colorless liquid or semi-solid, depending upon the temperature. It contains saturated alcohols with even numbers of carbon atoms from C_8 to C_{18}, but is about sixty per cent. C_{12}.

Melioran F_6 (?).

Melioran L (?).

Metapon.

Myristyl alcohol is tetradecyl alcohol or 1-tetradecanol, C_{14}, or $CH_3(CH_2)_{12}CH_2.OH$.

Ocenol is technical oleyl alcohol. Probably about 90 per cent. oleyl alcohol and 10 per cent. saturated alcohols, probably mostly stearyl.

Ocenol sulfate is the sodium salt of technical oleyl alcohol sulfate.

Octadecanol is stearyl alcohol.

Octadecenol is oleyl alcohol.

Octadecenyl alcohol is oleyl alcohol.

Octadecyl alcohol is stearyl alcohol.

Ondal.

Oleyl alcohol is octadecenyl alcohol or 9-octadecen-1-ol, C_{18} (unsaturated), or $C_8H_{17}CH{:}CH(CH_2)_7CH_2.OH$.

Oleyol.

Orcenol contains technical oleyl alcohol.

Pulitol.

Propylat K 10.

Pelzwaschmittel TA.

Pelzwaschmittel TAV.

Sapidan CAN.

Sapidan N.

Sapidan Special.

Sapidan W.

Stearyl alcohol is octadecyl alcohol or octadecanol, C_{18} (saturated), or $CH_3(CH_2)_{16}CH_2.OH$.

Setavin ON has been stated to be an ester of an aliphatic alcohol with an organic acid.

Stenol contains stearyl alcohol.

Stenolat V.

Sulfonated Lorol consists largely of the sodium salt of technical lauryl sulfate. Also see Gardinols R, SE and W.

Sulfonated Ocenol is the sodium salt of technical oleyl alcohol sulfate. Also see Gardinols CA and I.

Tetradecanol is myristyl alcohol.

Tetradecyl alcohol is myristyl alcohol.

Texapon paste or powder contains lauryl alcohol.

Ultravon FA.

Sanitary Products SECTION

A Section of "SOAP" dealing with

Insecticides • Disinfectants • Moth Products
Floor Products • Polishes • Chemical Specialties

Announcement!

IN order to provide for an immediately necessary expansion of our manufacturing facilities we have purchased the Pyrethrum and Insecticide Division including good will, business already booked, and all plant equipment used in the manufacture of Concentrate, and other Pyrethrum products from the

Sherwood Petroleum Company, Inc.

BUSH TERMINAL
BROOKLYN, N. Y.

This acquisition gives us greater production capacity and adds to our ability to make prompt deliveries and maintain a rigid standard of quality at all times.

To the insecticide customers of the Sherwood Petroleum Company, Inc., we offer a cordial welcome and a complete assurance of our desire, intention and ability to serve them to their satisfaction.

William F. Kroneman, who has been in charge of the Pyrethrum and Insecticide Division of Sherwood Petroleum Co., will join the Prentiss organization in charge of Pyrethrum Concentrate sales.

R. J. PRENTISS & CO., INC.

MAIN OFFICE
100 Gold Street
NEW YORK, N. Y.

FACTORY
261 King Street
BROOKLYN, N. Y.

Smart Set . . .

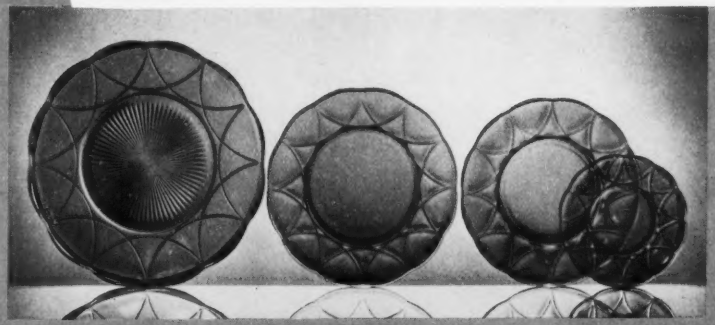
This Newport pattern first made a noteworthy record as a profitable premium in Hazel-Atlas Newport Platonite. Now we offer it in this smart set of transparent blue tableware. Here is a graceful table service that any woman will be proud to own. *Give* her what she *buys!* Tie in with the proven popularity of the Newport pattern. Let this newest Hazel-Atlas premium help you sell!

Also available—(not illustrated) Sherbet, small nappy, 9 oz. tumbler

HAZEL-ATLAS GLASS COMPANY
WHEELING, W. VA.

SALT & PEPPER 3407—SAUCER 3406—CUP

SUGAR 3408—CREAMER 3202—VEGETABLE DISH



3405—11½" PLATE 9977—9" PLATE 3403—8½" PLATE 9979—6½" PLATE

9975—PLATTER 3214—CREAM

Finished Concentrate ALL THE WORK!

CHECK THESE SPECIFICATIONS

1. Pyrethrin Content: 2.5% by weight or 2 grams per 100 c.c.

2. Stabilized: Retains its strength. Stabilized with antioxidant that has been proved effective by laboratory tests and commercial use over two years.

3. Killing Power: Guaranteed equal to or better than any extract of equivalent pyrethrin content.

4. No "False Pyrethrins": Patented process removes materials which are not pyrethrins but which react like pyrethrins when assayed by the Seil method.

5. Odor: Made only with odorless base oil. Practically free from odor, except the natural floral aroma of pyrethrum. No Kerosene used in Pyrocide 20.

6. Color: A rich amber. Free from colloidal green coloring matter. The purest form of pyrethrins commercially available.

7. Clarity: Dilutes brilliantly clear with any base oil. Remains clear either in concentrated form or when diluted for use.

8. Economy: No increase in price for improved odor — improved color — improved stability — improved clarity. Requires ⅓ to ½ less perfume.

Result: *Pyrocide 20 never varies in high killing power, purity or clarity!*

IT'S the job of our research chemists to *discover* the purest form of pyrethrins. But at McLaughlin Gormley King we go a step further.

We believe that only trained chemists can manufacture the purest form of pyrethrins commercially available. So chemists and *only* chemists make Pyrocide 20.

As a result we obtain maximum uniformity in processing . . . grinding, extracting, deodorizing, clarifying and stabilizing the finished concentrate with proven antioxidant. That's why we can guarantee its pyrethrin content and its killing power.

Yet you pay no premium for this superior pyrethrum concentrate because Pyrocide 20 comes in only one grade, the *best,* and it sells at the regular price. In fact you save money . . . ⅓ to ½ on perfume costs because Pyrocide 20 is deodorized.

If you have not already joined the hundreds of manufacturers who are making better insecticides with Pyrocide 20—investigate this improved pyrethrum extract at once. Learn how Pyrocide 20 can improve your product at no additional cost . . . how you can actually save money by using it.

Today — write for FREE illustrated booklet, "PYROCIDE 20, Deodorized — Clarified."

McLAUGHLIN GORMLEY KING COMPANY
Manufacturing Chemists • Minneapolis, Minnesota

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THE PUREST FORM OF PYRETHRINS COMMERCIALLY AVAILABLE

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and now it sells our entire line of household sprays to our customers."

Freedom from kerosene odor is only one of the many reasons why the Insecticide Industry has endorsed DEO-BASE since 1931. Stability, balanced fractionation, sparkling clarity and assurance against staining are some others.

Get set for *your* 1938 season with DEO-BASE—the modern base for liquid insecticides. A finished spray made with DEO-BASE can be sold everywhere, for use anywhere.

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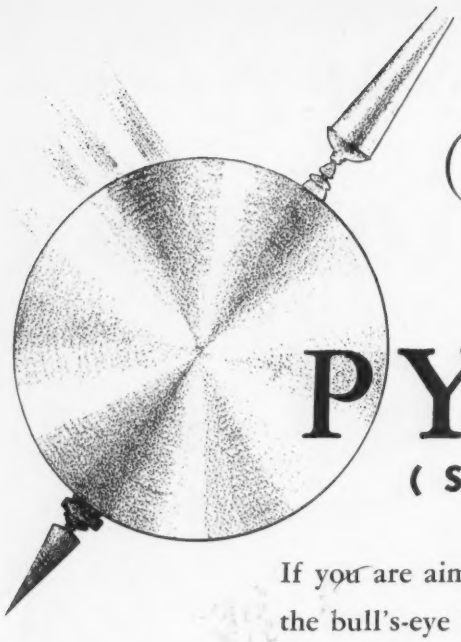

The SWING IS TOWARD PYREFUME

(SUPER 20 - SUPER 30)

If you are aiming for greater dealer and consumer acceptance, hit the bull's-eye by using Pyrefume in your insecticide sprays. Reorder after reorder attests the many advantages of Pyrefume . . . its economy, potency, clarity, miscibility. Is is any wonder then, that more and more the swing is towa d Pyrefume?

The A B C of PYREFUME *Superiority*

A "Knock down and kill" potency is above standard as demonstrated by physiological laboratory tests.

B Pyrethrins content of Pyrefume is *guaranteed*—2 grams per 100 cc. of Pyrefume 20; 3 grams per 100 cc. of Pyrefume 30 . . . proven by rigid assay *after* extraction.

C Stability assured through the use of freshly milled flowers and addition of special anti-oxidant, unique with Penick for many years.

D Blends clearly and perfectly with usual oil bases . . . all sediment has been removed. Stays clear.

E Stainless as a pyrethrum concentrate can be. Pour some insecticide made with Pyrefume on paper and note the difference as compared to ordinary pyrethrum extract. Waxes and resins have been removed by refrigeration.

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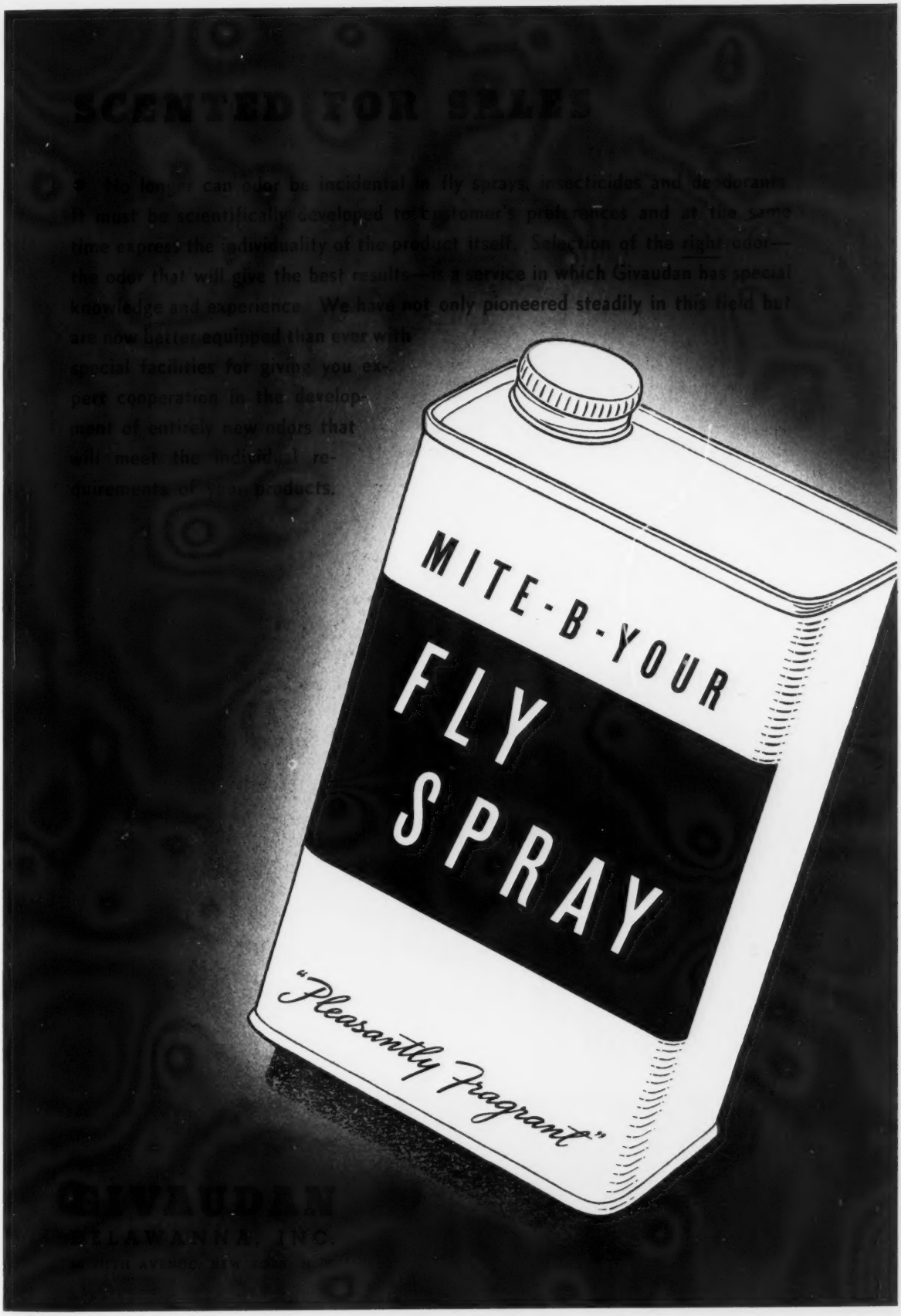
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A small amount of D.H.S. Activator added to your spray will result in

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We produce and sell Steam-distilled Pine Oils, Wood Rosins, and Steam-distilled Wood Turpentine.

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The FINEST MILLED Powders of their Kind

NOWHERE in the world will you find Pyrethrum and Derris Powders which are ground finer than those produced by McCormick. The microscopic fineness of these powders means that each ounce is broken up into a vastly higher number of killing particles, which stick more closely to the vital parts of insects, insuring a quicker, surer kill. . . . For further information address: The McCormick Sales Co., Baltimore, Md. In Canada: McCormick & Co. (Canada) Ltd., 454 King St., West, Toronto, Ontario.

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OUTSTANDING . . . . . .

YEAR after year, the National Association of Insecticide & Disinfectant Manufacturers continues to list among its members most of the outstanding firms in the field of insecticides, disinfectants, and allied sanitation products . . . some are large, others are small . . . but irrespective of size, they are representative of the best elements of the industry. If your firm is not a member, why not look into the matter of allying yourself with this group in the interests of your business and your industry? The office of the Secretary will gladly give you further details.

▼

National Association of
Insecticide & Disinfectant Manufacturers, Inc.

110 East 42nd Street New York

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A Problem Mastered

The use of the new activators in the manufacture of insecticide sprays presented a difficult problem to the perfumer. But the persistent odor of these valuable products has been successfully overcome in the laboratories of van Ameringen-Haebler, Inc. In many cases the perfume which you have been using will not prove satisfactory after one of these new products has been added to your present formula.

Avail yourself of our experience and let us develop an effective odor for your new spray base.

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Sanitary Products

A Section of SOAP

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

THE 24th annual meeting of the National Association of Insecticide & Disinfectant Manufacturers held last month in New York, was one of the best attended meetings on record. Most of the outstanding American manufacturers in the field of household insecticides, disinfectants, and sanitary specialties were represented at the sessions. Much of importance to the industry, scientifically and from the angle of marketing and legislation, was recorded. A number of the important reports and addresses are published in this issue of *Soap*. Others will be published next month.

The field, influence and membership of this Association have expanded markedly during the past few years. It is in fact serving the whole industry of sanitation products, and it should embrace in its membership every reputable firm in the business,—large or small, it does not matter. This is the true wish of its officers and governors,—and a subject for thought among those firms not now numbered among the membership.

HYSTERIA is flaring up here and there about boycotting goods of Japanese origin. Before some manufacturer or some ladies' aid society becomes excited about pyrethrum because seventy-five per cent of the world's crop is produced in Japan, let us look this question squarely in the face. First, there is no other place where we can get our pyrethrum, even if we wanted to. Second, why attempt to protest against actions of a militarist clique in Japan by refusing to use goods produced by poor Japanese farmers who probably are no more in sympathy with the actions of the army than we are. Third, if the purchasing agents for some chains which are mostly playing to the gallery by excluding Japanese goods, raise the question, tell him that pyrethrum also comes from Kenya and Dalmatia. It does. In all good sense, there can be no splitting of hairs over the source of pyrethrum today. If you must have pyrethrum, it must in all likelihood be Japanese. That's all there is to it, no matter how hysterical we may become.

A SPECIFICATION for "germicide" covering requirements by the State of New York has recently attracted the attention of disinfectant manufacturers. As we have pointed out before in regard to some of the New York State specifications for sanitation products, this specification was either written by someone deliberately to discourage bidding by reputable houses, or else it was written by someone with little or no knowledge of what he was about. Efforts are being made now to find out what is behind this germicide specification with a view to action through the National Association of Insecticide & Disinfectant Manufacturers. During the coming year, it is hoped that numerous situations of this type will be brought up for attention, particularly aiming toward the elimination of "trick" specifications for products supplied to public agencies by reputable manufacturers of insecticides, disinfectants, and allied products.

I. & D. Association Adopts New Specifications at 24th Meeting

J. L. BRENN of Huntington Laboratories, Huntington, Indiana, was named president of the National Association of Insecticide & Disinfectant Manufacturers for the coming year at the 24th annual meeting of the organization held at the Hotel Biltmore, New York, December 6 and 7. He succeeds William B. Eddy, of Rochester Germicide Co., Rochester, N. Y., retiring president, who has served for the past two years. The appreciation of the membership for Mr. Eddy's services was expressed by Dr. Robert C. White, who presented the retiring president with a watch on behalf of the membership at the annual banquet of the association at the Biltmore the evening of December 7.

The banquet, which was preceded by a cocktail party at which members of the association were guests of Continental Can Co., closed the two-day session. Prior to adjournment, the members voted to hold the mid-year meeting at Lake Wawasee, Ind. The meeting time will be extended to three days and the dates, June 13, 14 and 15, have been selected.

William J. Zick of Stanco, Inc., New York, has been named as the new first vice-president of the association, with Wallace Thomas of Gulf Refining Co., Pittsburgh, as second vice-president. John Powell of John Powell & Co., New York, was again elected treasurer, and John H. Wright of John H. Wright Co., New York, will continue to serve as honorary secretary. Mrs. E. D. Sullivan will act as executive secretary over the coming year.

There are several changes in the personnel of the board of governors for the coming year, the new members being Gordon Baird of Baird & McGuire, Inc., Holbrook, Mass., Dr. E. G. Thomssen of J. R. Watkins Co., Winona, Minn., and John Curlett, McCormick & Co., Baltimore. Retiring members are Dr. Robert C. White, Robert C. White Co., Philadelphia, Chas. P. McCormick, McCormick & Co., Baltimore, and H. M. Clark, Dr. Hess & Clark, Ashland, Ohio.

One of the most important developments at the meeting was the decision to submit the association's specifications for insecticides and disinfectants to the National Bureau of Standards. Several changes have been made in both the insecticide and disinfectant specifications, the revised drafts appearing elsewhere in this report.

Another recommendation, acted on favorably by the governors, was a proposal, made by Gordon Baird and H. W. Hamilton, to investigate the desirability of establishing a fellowship for disinfectant research. A committee will consider this proposal and report to the board not later than the March meeting. Another special committee will be named to consider the issuance of bulletins by agricultural experiment stations, giving methods for the home manufacture of insecticides. It was the consensus of opinion that such bulletins not only are contrary to the interests of the insecticide industry, but also in many cases offer misinformation to the public.

The attention of the meeting was focussed sharply on recent legislative trends in a series of talks dealing with legislative problems. Richard K. Hines of Vick Chemical Co., New York, predicted a far more strict control of chemical and drug products as a result of the recent deaths which followed use of an elixir of sulfanilamide prepared with diethyleneglycol. He predicted that insecticide and disinfectant manufacturers would find the products of their industry brought under the scope of the new legislation in view of the present attitude of Congress.

In this connection H. W. Hamilton of White Tar Co., Kearny, N. J., suggested that a committee be named to draft a model law covering household insecticides and disinfectants. The purpose of this would be to encourage uniformity in state legislation affecting these industries. This suggestion was approved and the legislative committee of the association was instructed to prepare a rough draft of such a model law.

One of the featured speakers at the meeting was Lee H. Bristol, vice-president of Bristol-Myers Co., Hillside, N. J., whose address to the association was broadcast over a national network by the Mutual Broadcasting Co. Mr. Bristol also referred to the recent sulfanilamide tragedy and pointed to the fact that such an outcome would be impossible with a widely advertised product.

He described national advertising as a great safety measure for the protection of the consumer, since the manufacturer turning out a product which he knows will be held up to the white light of publicity would not consider risking his firm's reputation on an untried, untested, potentially dangerous product.

Another speaker at the meeting was Dr. Alvin Cox, chief of the division of chemistry of the California Department of Agriculture, who clarified the department's present attitude on certain insecticide labeling problems. In the past the department has opposed use of the word "kill" on insecticides, but since it now recognizes the fact that the word is commonly accepted as synonymous with "control", will no longer oppose such usage on insecticide labels. When the word "kill" is used, however, to imply a more complete and final effect than the particular product is capable of producing, such use is declared false, misleading and not acceptable.

Other guest speakers included Prof. W. C. McTavish, N. Y. University, who delivered "Some Observations on Mothproofing Products"; W. D. Lewis, National Hotel Management Co., "Hotel Sanitation and Insect Control"; and Dr. Stroud Jordan, New York City Purchasing Department, "Application of N.A.I.D.M. Specifications to the Problems of the Purchasing Department of the City of New York."

ON the scientific side, a number of interesting papers were presented by the various technical committees of the association. Of special interest was a paper by Dr. R. C. Roark of the U. S. Department of Agriculture who compared the insecticidal efficiency of cube and derris roots. Laboratory and field tests indicate a slight superiority of derris over cube against some insects, he said. However, this slight superiority of derris is more than offset by the present difference in price, he indicated, making cube the more economical product at present price levels. Other investigators, in discussing Dr. Roark's paper, reported substantially the same findings.

C. A. Murray of Baldwin Laboratories, Saegertown, Pa., outlined the results of a series of experiments undertaken to determine the possible range and accuracy of the Peet-Grady method when different insecticides are evaluated simultaneously. The Peet-Grady method was also the subject of a paper by Dr. W. A. Simanton of Gulf Research & Development Co., Pittsburgh, who offered a modification of the present testing method designed to give greater speed and accuracy. Testing of liquid insecticides against the German cockroach was discussed by E. N. Woodbury, holder of the N.A.I.D.M. fellowship at Ohio State University. Mr. Woodbury, who is working under the supervision of Dr. F. L. Campbell, outlined a tentative standard testing method which will later be offered to the association for adoption.

Reporting for the antiseptic committee, Dr. George F. Reddish of Lambert Pharmacal Co., St. Louis, outlined recent work by the committee on the effect of peptone on the resistance of *staphylococcus aureus* to germicides. After testing a considerable number of samples, the committee selected one lot of peptone as being specially suited for use. A sample has been sent to the U. S. Food and Drug Administration and if it is approved the entire lot will then be set aside for use

New Officers and Governors for 1938

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Huntington Laboratories, Inc.
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1st Vice-president
Stanco, Incorporated

W. B. EDDY
Rochester Germicide Co.
Retiring President, new
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Chemical Supply Co.

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Baird & McGuire, Inc.

DR. E. G. THOMSSEN
J. R. Watkins Co.

CLARENCE WEIRICH
C. B. Dolge Co.

President elect J. L. Brenn is caught in a jovial mood at the banquet by our candid camera man, Charles Opitz.

♦

in testing of antiseptics and disinfectants. Arrangements have been made with the manufacturer, Armour & Co., to maintain control over the peptone made for this purpose.

C. L. Weirich of C. B. Dolge Co., Westport, Conn., in reporting for the sanitary specialties committee, emphasized the necessity for developing additional standards and testing methods for other materials than insecticides and disinfectants. He referred particularly to water waxes and outlined testing methods in use at present by various groups of floor covering manufacturers. He suggested further that the U. S. Bureau of Standards might be called upon to set up definite standards for various grades of carnauba wax, the most important floor wax ingredient.

THE following official resolutions were approved by the meeting before adjournment:

1. Be it resolved that a rising vote of thanks be extended to our retiring President, W. B. Eddy, for the very progressive and comprehensive administration which he has inspired during the two years of his incumbency;

2. Be it resolved that a rising vote of thanks be extended to Secretary John H. Wright, for the efficient and painstaking administration of his office which has contributed greatly to the welfare of the association;

3. Be it resolved that a rising vote of thanks be extended to our Treasurer, John Powell for his many years of fine service and his conscientious zeal for economy;

4. Be it resolved that a vote of thanks be given the program committee, the entertainment committee and the committee on arrangements, whose capable handling of details have tended greatly toward making the present convention an outstanding one;

5. Be it resolved that the secretary of the association be instructed to address a letter of appreciation to Robert C. White and Charles P. McCormick on the occasion of their voluntary retirement from the board of governors, after having served over a decade, during which time the association has made great advancement;

6. Be it resolved that the secretary be instructed to forward to Messrs. Wallace Thomas and Peter Dougan, telegrams, voicing the great regret of those in attendance on learning of their illness and wishing them both speedy recovery;

7. Be it resolved that the recommendation of Messrs. Gordon Baird and H. W. Hamilton concerning the possibilities of establishing a fellowship for certain disinfectant research be given immediate attention by reference to a committee which after fullest consideration will report to the board of governors for consideration and action by that body at a date not later than the March meeting of the board;

8. Be it resolved that the president be requested to have promptly considered by the board, or by a special committee, reporting to the board, the too prevalent issuances by State Experiment Stations, and others, of information concerning home manufacture of insecticides which is false and misleading and, consequently, detrimental to the welfare of the members of this organization who present to the public products only after costly and painstaking research;

9. Be it resolved that a vote of thanks be given to the various guests whose attendance at this convention and cooperation throughout the year is most helpful and appreciated;

10. Be it resolved that immediately upon action on these resolutions that the resolutions committee for this convention be discharged.

JOHN N. CURLETT,
Chairman.

The complete draft of the new insecticide and disinfectant specifications, which the meeting voted to submit to the National Bureau of Standards, follows:

Insecticide Specification
Liquid Household Spray Insecticide

FOR some years, the National Association of Insecticide & Disinfectant Manufacturers, Inc., through appropriate technical committees has been working to develop a master specification for Household Liquid Spray Insecticide (Fly Spray) that could be used with confidence by purchasing agencies. The object has been to raise the standard of insecticides purchased, to eliminate untrue and unsubstantiated claims of effectiveness, and to replace where possible ridiculous and freak specifications of individual purchasing agencies by a sensible and scientifically correct standard specification, — a specification of practical value to both buyer and supplier.

Inasmuch as liquid insecticides are used against living organisms, they are tested and evaluated by tests against house flies. For this purpose, the official standard Peet-Grady Test for liquid spray insecticides is used. All other requirements, such as odor, non-staining, color, etc., are determined by ordinary laboratory tests.

Accordingly, the National Association has established three grades of "Household Type Liquid Insecti-

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Retiring president William B. Eddy is presented with an engraved gold wrist watch by Dr. Robert C. White on behalf of the association membership.

cides," differing only in their killing power and covering the normal range of consuming requirements. These grades have been established by comparison with an Official Test Insecticide (a composite product made up each year and distributed to the industry for testing purposes). The grades are as follows:

Designation	Grade	Kill Classification
AA	Excellent	+ 16 or higher
A	Very Good	+ 6 to + 15
B	Equal to Official Test Insecticide	+ 5 to — 5

The National Association of Insecticide & Disinfectant Manufacturers hopes that you as a purchaser or consumer will find the master specification of value in buying the grade of insecticide required under your conditions of use, and that you will specify that your insecticide purchases must comply with one of the grades of this specification.

The specification follows:

Official Specification
Liquid Household Spray Insecticide

(Adopted December, 1936)

1. A household spray oil type insecticide shall be harmless to man and warm blooded household animals, when used as directed.

2. When sprayed, as directed, it shall not stain fabrics, wall paper and general household furnishings, that are not stained by dry cleaning fluids.

3. When used in the customary manner it shall not contaminate closed packages of food materials commonly found in homes.

4. It shall not corrode metals.

5. It shall have no objectionable odor, and no particular odor shall be specified.

6. It shall have a flashpoint not less than 125°F. when tested in the Tagliabue closed cup.

7. It is recommended that it be purchased on a direct comparative basis with the Official Test Insecticide of the National Association of Insecticide and Disinfectant Manufacturers, Inc., by using the method of test specified on the bottles of the Official Test Insecticide.

8. The Association hereby adopts the following grades (the plus or minus figures shown therein designating the points over or under the Official Test Control Insecticide when the "Unknown" and the "Control" are tested at the same time in the same manner):

The entertainment committee, L. J. La Cava and J. B. Magnus, can't quite relax as the show goes on. Larry is figuring wear and tear, while Joe cons the next number.

Grades

AA Excellent—plus 16
A Very Good—plus 6 to plus 15
B Equal to Official Test Insecticide; minus 5 or plus 5.

Disinfectant Specifications

IN order to answer many requests which come to the offices of the National Association of Insecticide and Disinfectant Manufacturers, Inc., for definite standards for the commonly used disinfectants, the following specifications for four common types of disinfectants have been adopted. From time to time specifications for other types may be promulgated.

Emulsified Coal Tar Disinfectants, Cresylic Disinfectants and Pine Oil Disinfectants are judged on the basis of their relative disinfectant value. The relative efficiency of these three types of disinfectants should be expressed in terms of "phenol coefficient", determined in accordance with the official method of the Food and Drug Administration, U. S. Department of Agriculture, as specified in Circular 198. With the Hypochlorite type of products, the disinfectant power should be judged on the basis of the content of available chlorine as determined by the standard methods of chemical analysis. The phenol coefficient of a given product indicates its relative disinfectant power as compared with that of phenol (the typhoid germ being used as the test-organism). The disinfectant power of phenol (carbolic acid) is taken as the figure one (1), and the product in question may be so many times stronger or weaker than phenol. (Thus a phenol coefficient of 2 indicates twice the disinfectant power of carbolic acid.)

In the purchase of disinfectants, the important thing to know is the disinfectant efficiency of the products, as indicated by the dilutions in which they are recommended for use. It is the hope of the Association that these specifications will provide purchasing agencies with standards for the purchase of this class of supplies and thus avoid the uncertainties attending the use of conflicting specifications.

Hypochlorite Disinfectants. The germicidal value of these products depends upon the amount of available chlorine. Commercial products are readily obtainable with an available chlorine content from 2½ to 7½ per cent. The percentage desired by the buyer should be named in this specification.

Emulsified Coal Tar Disinfectants. This type of disinfectant is readily obtainable from many reliable producers, with phenol coefficients ranging anywhere from 2 to 20. The phenol coefficient desired should be named by the buyer.

Cresylic Disinfectants. This type of product is available with phenol coefficients of from 2 to 5.

Pine Oil Disinfectants. Products made under this specification from good quality pine oil should have a coefficient of 3 to 4.

1. Standard Specifications for Liquid Hypochlorites Disinfectant, Deodorant and Germicide

Composition — Liquid hypochlorites are available in three forms: **one**, sodium hypochlorite alkaline with sodium hydrate, sodium carbonate or the other alkaline salts; **two**, hypochlorites which are essentially sodium hypochlorite and alkaline with calcium hydrate; and **three**, calcium hypochlorite solutions alkaline with calcium hydrate. A delivery of any one of these shall be satisfactory unless otherwise specified.

Physical Requirements — The hypochlorite solution shall be a homogeneous liquid. It shall be miscible with water of zero hardness at 20°C.

(68°F.) in all proportions. It shall be ready for dilution when delivered.

Chemical Requirements — The available chlorine content which shall not be less than 2.5 per cent by weight shall be clearly stated on the label. Its rate of deterioration shall not be more than 10 per cent of its original available chlorine content when stored in the original container for six months in a cool, dark place at maximum temperature of 68°F. (20°C.)

Identification — Each container shall be marked with the name of the material, the brand (if any) of the material, the name of the manufacturer, net contents therein, and date of manufacture.

Packing — The hypochlorite shall be delivered in standard, commercial containers of the size as called for in the schedule. Each container holding one gallon or more shall be stoppered with a closure having vent.

2. Standard Specifications for Pine Oil Disinfectant

1. The product shall be manufactured from pure steam distilled pine oil and emulsifying agent and remain clear and homogeneous under normal and reasonable conditions of storage.

2. It shall contain not less than 60 per cent by weight steam distilled pine oil.

3. It shall contain not more than 10 per cent water.

4. The phenol coefficient shall be determined by the F. D. A. Method of Test against B. typhosus and be clearly stated on the label attached to each shipping container.

5. It shall not contain kerosene or other petroleum distillates.

6. The product shall make a stable emulsion in water of zero hardness at 20°C. (68°F.) when diluted at the rate of 5 per cent. The emulsion shall stand for at least twenty-four hours showing no sign of oil float (unsaponified or clear free oil).

Approve Special Peptone

A special lot of peptone, prepared by Armour & Co., Chicago, has been approved by the Antiseptic and Disinfectant Testing Committees of the N.A.I.D.M. for use in the F.D.A. method of testing antiseptics and disinfectants. The product selected is said to run more uniform than other varieties and so to be particularly suitable for test purposes.

Candid camera corners Dr. R. C. Roark of the U. S. Department of Agriculture.

3. Standard Specifications for Emulsifying Type Coal Tar Disinfectant

1. It shall contain not less than 65 per cent by weight of oils and acids from coal tar.

2. It shall contain not over 10 per cent water.

3. It shall not contain kerosene or other petroleum distillates.

4. The phenol coefficient shall be determined by the F. D. A. Method of Test against B. typhosus and shall be clearly stated on the label attached to each shipping container.

5. It shall make milky emulsions with water of zero hardness at 20°C. (68°F.) when diluted in the ratio of 5 parts disinfectant with 95 parts of water for disinfectants of coefficient 10 or under; and in the ratio of 2 parts of disinfectant to 98 parts of water for disinfectants over 10 in coefficient; these emulsions shall show not more than a trace of oily float or sediment when stored for 5 hours at room temperature.

6. It shall remain limpid, showing no sign of naphthalene crystallization down to 0°C. in 12 hours.

7. It shall contain less than 5 per cent benzo-phenol.

8. The disinfectant shall stand indefinitely, showing no separation, no loss of germicidal value, or any form of decomposition (such as soap separating from the oil) under normal and reasonable conditions of storage.

4. Standard Specifications for Cresylic Disinfectants

1. The product shall be made from that portion of coal tar known as "tar acids" and a soap derived from a fat or oil of vegetable origin.

2. It shall contain not less than 50 per cent of tar acids, as determined by the method described in U.S.P. XI for the assay of cresol in the Saponated Solution of Cresol.

3. It shall contain not more than 25 per cent inert ingredients (water plus glycerine, if any).

4. The phenol coefficient shall be determined by the F.D.A. Method using B. typhosus as the test organism and shall be clearly stated on the label attached to each shipping container.

5. It shall contain less than 5 per cent of benzo-phenol.

6. It shall make clear solutions with water of zero hardness at 20°C. (68°F.) within the concentration range of from 1 to 4 per cent. Such solutions, when kept in closed containers, shall remain either practically clear or become only slightly opalescent when allowed to stand for 24 hours at 20°C. (68°F.) away from direct light.

7. It shall show no soap separation when cooled down to 0°C. and held at this temperature for 3 hours.

THE official registration list shows the following in attendance at the 24th annual meeting:

Registration

Allaire, Woodward & Co.
R. P. Neptun

American Can Co.
T. E. Alwyn, C. L. Lovell, Louis A. Trevisan

Mid-year Meeting at Lake Wawasee, Ind.

The annual mid-year meeting of the National Association of Insecticide and Disinfectant Manufacturers will be held June 13, 14 and 15 at Lake Wawasee, Ind. This attractive resort is located 100 miles from Chicago and offers every facility for recreation, including golf, horse back riding, boating, etc.

The feminine contingent. A number of wives of members were on hand at the 24th annual meeting.

Aromatic Products Inc.
E. T. Booth, M. Lemmermeyer, Clifford L. Weston
Associated Chemists Inc.
Arthur Srebren
Atlantic Refining Co.
J. M. Hoerner, E. W. McClure
Baird & McGuire, Inc.
Campbell Baird, Gordon M. Baird, Jack C. Varley
Bakelite Corp.
T. J. Major
Baldwin Laboratories, Inc.
H. W. Baldwin, C. A. Murray
Henry Barroll & Co.
J. M. Davies
S. H. Bell Co.
S. H. Bell
Black Flag Co.
E. R. O. Mohundro, James J. Reilley, F. X. Tiddy
Breuer Electric Mfg. Co.
A. A. Breuer
Buckeye Chemical & Specialty Co.
H. M. Epstein
Chemical Supply Co.
Henry A. Nelson
Clifton Chemical Co.
Dudley J. Bachrach, L. B. Schwarcz
Commercial Solvents Corp.
H. N. Midtskang
Continental Can Co.
W. F. Bredemeyer, George E. DuCharme, L. J. LaCava, E. J. O'Connor, O. G. Jakob
Davies-Young Soap Co.
John R. Young, R. H. Young
Derris, Inc.
O. M. Poole, R. Wotherspoon
Dethol Mfg. Co.
Earl R. Ament, Frank G. MacAloon
Dodge & Olcott Co.
Ralph W. Bush, V. H. Fischer, R. B. Houk
C. B. Dolge Co.
K. A. Dolge, Clarence Weirich
Dow Chemical Co.
Fred Fletcher, L. S. Roehm, W. W. Sunderland, J. A. Dorland, R. E. Dorland, Alexander Leith, Jr.
E. I. DuPont de Nemours & Co.
L. W. Craft, Alfred H. Moeller, G. J. Tombak, Sanford J. Hill, A. S. Slack, Dr. W. H. Tisdale
Enoz Chemical Co.
J. D. Oesterreicher
Federal Varnish Co.
M. J. Flanagan, J. H. Lawson
Felton Chemical Co.
H. F. Dresel
Charles Fischbeck Co.
Charles Fischbeck, C. Lloyd Fischbeck
Frederick Disinfectant Co.
Fred A. Hoyt
Fritzsche Brothers, Inc.
C. F. Booth, George L. Ringel, B. F. Zimmer
Fuld Brothers
Melvin Fuld
Fumol Corp.
M. J. Kammerling
General Laboratories Co.
William A. Hadfield
General Naval Stores Co.
W. H. McArdle, E. J. McClure
Givaudan-Delawanna, Inc.
Ira Bennett, R. A. Engel, Dr. William Gump, Ralph M. Stevenson
Great Lakes Chemical Utilities
A. E. Soissons
Gulf Research & Development Corp.
Albert C. Miller, Dr. W. A. Simanton
Dr. Hess & Clark Inc.
Dr. Ray M. Batchelder, H. M. Clark

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Committees for 1938

Following a special meeting of the Board of Governors of the National Association of Insecticide & Disinfectant Manufacturers on Dec. 8, J. L. Brenn, newly elected president, announced the following committee appointments for 1938:

Disinfectant and Antiseptic Marketing—H. W. Hamilton, White Tar Co., chairman.

Disinfectant and Antiseptic Scientific—Dr. G. F. Reddish, Lambert Pharmacal Co., chairman.

Insecticide Marketing—H. A. Thomas, Shell Petroleum Co., chairman.

Insecticide Scientific—Dr. Alfred Weed, John Powell & Co., chairman.

Sanitary Specialties Marketing—Melvin Fuld, Fuld Bros., chairman.

Legislative—C. L. Fardwell, McCormick & Co., chairman.

Membership—R. H. Young, Davies-Young Soap Co., chairman.

General Contact—C. C. Baird, Baird & McGuire, Inc., chairman.

Publicity—Ira P. MacNair, MacNair-Dorland Co., chairman.

Convention—John Powell, John Powell & Co., chairman.

Complete committee appointments and full committees will be published in the February issue of SOAP.

INSECTICIDES

KILL MOTHS, THEIR LARVAE AND EGGS. *PROTECT* FABRICS FROM MOTH RAVAGE

Insecticides based on Lethane 384 act in two ways in controlling moths and insects doing similar damage:—

Quickly and effectively upon contact, they kill adult, larval and egg stages of the insects.

Without harm to fabrics and for a season, they protect stored fabrics from moth ravage.

In your special moth spray and in your household spray, the housewife expects high killing power and at least a short period of protection from moths. Through the use of Lethane 384 both are obtained and your insecticides are stable, uniform, crystal clear and safe.

RÖHM & HAAS COMPANY, INC.

222 W. Washington Square, Philadelphia, Pa.

Chicago • Kansas City, Mo.

Canadian Agent, P. N. SODEN & CO., LTD., *Lachine, P. Q., Canada*

MOTHPROOFING PROBLEMS

By Prof. W. C. McTavish*
New York University

THE many scientific papers which have appeared in recent years on the subject of mothproofing, as well as an existing list of well over a thousand patents on the subject, shows that intensive research on this problem has not been lacking. Yet it is probable that the economic loss due to moth infection still amounts to many millions of dollars annaully. Part of this loss is undoubtedly due to carelessness on the part of the public and this large fraction of loss can only be partially remedied by extended educational campaigns such as is undertaken by government agencies or by intensive advertising by reliable commercial concerns. However, in spite of the many useful substances now available, it is necessary to admit that the ideal mothproofing compound has not yet made its appearance. The main purposes of this article are (1) to point out some of the more important desiderata which are still unattained, (2) to review briefly the present day situation in this field, and (3) to suggest a basis for future research.

An ideal mothproofing compound should be non-toxic to human beings, and one that can be applied easily to both the finished and unfinished goods most vulnerable to attack, such as wool, furs and feathers. It should be colorless, odorless and leave the treated material unaffected as far as its ordinary properties are concerned. It should not dust away or be removed by aqueous detergents or the fat solvents employed in dry cleaning, and finally it should not deteriorate with normal usage but be effective throughout the life of the treated material.

An examination of published information to find how closely the theoretically perfect substance has been approached reveals considerable confusion and contradiction, and much of this trouble arises from the inadequate technique and interpretation of accelerated tests made on test pieces with living larvae. Some of these experimental difficulties are described in a paper by Moore (J. Ind. Eng. Chem. (Anal. Ed.) vol. 2, p. 365 (1930)). Two important points should be noted, first that the larvae can cause damage in two ways, by eating the fabric as they grow, secondly by cutting fibers to form pupal cocoons in their adult stage. In the latter case it is obvious that no ordinary eating poison can save the infested material. The accelerated Petri dish test, using side by side samples of differently treated materials, can at best only reveal relative moth repellant action; there is no certainty that if one piece were present the larvae would not attack it eventually. There is also the question of the age and breed of the larvae themselves. If they are too young there will always be a great mortality; if too old they may no longer be eating and will tend to form cocoons. The question of artificial selection is not negligible; a well-known commercial testing laboratory has available a family of larvae many of whose ancestors have been killed by countless previous tests; the present descendants have a very noticeable tolerance for many of the commonly used poisons and will survive much rougher treatment than the average moth larva. Such factors as these will have to be standardized to a greater extent if an adequate judgment is to be passed on the relative efficacies of many of the proposed mothproofing compounds.

Of the many hundreds of substances suggested for use in moth control, only a few have proven to be of a practical value. These can be divided into two classes; first, those which are essentially temporary in their action, and second, those which purport to be of a more lasting nature.

In the first or temporary class, the object is to kill moth life at all its stages either by means of a vapor or liquid, and when this is accomplished, the treated material is to be kept in tight containers where further contamination by moths is physically impossible. In the vapor class a considerable variety of substances have been suggested. The great contrast between the cedar lined closet and the use of hydrogen cyanide gas illustrates the wide range of effectiveness and practicability available. In actual practice a compromise is necessary in the majority of cases—in consequence the use of clean relatively harmless high vapor pressure solids is most convenient. Of these naphthalene and paradichlorobenzene are the most widely used. The failure of the manufacturers to teach the public the limitations of these substances has been deplored by previous writers; this lack of cooperation is particularly unfortunate since it is believed that with proper handling these safe and sane substances have considerable efficacy.

The use of liquids instead of vapors is more effective, although the work of applying the liquids is difficult. They are applied directly in the form of a copious spray or direct pouring to secure thorough inhibition by the fabric and direct contact with the moth life. (A useful liquid-vapor combination for inaccessible places is propylene dichloride and carbon tetrachloride as recommended by the Mich. Agr. Exp. Sta. 1934.) Many liquids have been suggested, none seems more effective than ordinary

* Address before 24th annual meeting, Natl. Assn. of Insecticide & Disinfectant Mfrs., New York, Dec., 1937.

gasoline; (diluted with carbon tetrachloride to reduce the fire hazards). Frequently, vegetable insecticides are dissolved in hydrocarbons—the favorites are pyrethum extract, cube and derris roots. These tend to prolong the larvicide action after the solvent has evaporated away. Unfortunately deterioration of these natural insecticides under ordinary atmospheric conditions is relatively rapid.

It is in the so-called permanently effective class that the greatest improvement can be expected. In contrast with the first group which purports to kill by contact and then evaporate away, the substances in this class are supposed to remain in the treated material and poison the larvae during feeding.

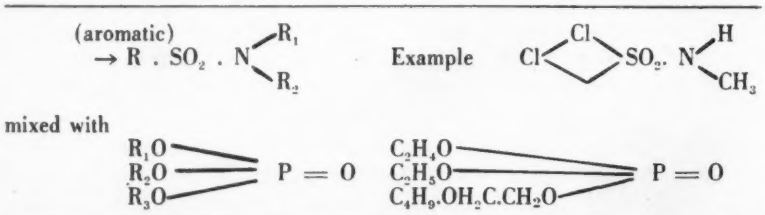
Dilute aqueous solutions of silico-fluorides, containing alum, are the only ones in this class which have been popularized for household use. The treated material has a flair moth repellant activity for a reasonable amount of time. The recommended practice is to renew the application annually. Like all water soluble substances they can be readily lost by accidental wetting or washing—moreover their use is necessarily restricted to materials which are not injured by water.

In contrast with these are the larvicides which are soluble in the usual dry cleaning solvents. The best known are the cinchona alkaloids used either alone or in combination with oleic acid. This class of moth repellants has not yet reached the household stage but is extensively used by the professional dry cleaners. The effects of the cinchona derivative under normal wear last about as long as in the case of the silico fluorides; as shown by Jackson and Wassell, J. Ind. Eng. Chem., vol. 19, pg. 1175 (1927) they are resistant to water but must be renewed after each drycleaning.

In Europe considerable use is made of colorless water soluble derivatives comparable to "Martius yellow." Although the history of this moth proofing dye goes back to ancient Egyptian times, it is still being improved by the modern chemist; "Eulan" is the best known derivative, recently (1934) "Eulan new" has been claimed as an improvement. This type of larvicide approaches the ideal case perhaps more nearly than any of the others mentioned. It seems to attach itself firmly to the fibres of the treated fabric and will resist mechanical working as well as washing in water or fat solvents. Unfortunately under ordinary atmospheric conditions of moisture and light it does not hold its effectiveness any longer than the others. These dye-like materials are best applied during the finishing process rather than later on and accordingly are not likely to find much household use.

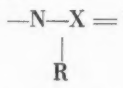
Until very recently the chemical background of larvicidal compounds has been almost entirely empirical or accidental. The toxicity of pyrethum, hydrocyanic cyanide, carbon bisulphite, and the fluorides on insects in general have long been known. In searching for new and improved compounds it was necessary to work by analogy rather than any firmly based chemical knowledge.

A good example of this empiricism is given by a recent patent (U. S. 1,955,207) where some arylsulphonic acid amides have been shown to possess good moth proofing qualities but are insufficiently soluble in the fat-solvents for use in the dry-cleaning process—by mixing with organic phosphorus compounds free from sulphonic and carboxylic groups this defect is overcome.



In more general attempts to increase larvicidal toxicity, fastness to fibre adhesion and permanent stability, the knowledge of general characteristics has been the leading guide. For example, the cinchona alkaloids were used on the basis of the following known properties. They are: 1) salt-forming organic compounds, 2) bitter substances, 3) intestinal irritants, 4) germicides and antiseptics, 5) astringents, 6) some of their derivatives are local anesthetics.

Perhaps the first serious attempt to generalize larvicidal properties in terms of a type chemical formula is found in the patents of Lommel and Munzel. Their formula is the following



Where R is H or a radical, X is N or C, and Y is N, C or nuclear radical. Obviously such a type arrangement is very broad.

A number of substances which could be classed under this formula were tested by Minaeff and Wright (J. Ind. Eng. Chem. Vol. 21, pg. 1187 (1929)). These fell into two general categories, first, aniline and some of its dye-like derivatives, second, urea derivatives containing one or several benzene rings. The authors of this investigation found that aniline and a number of dyes were relatively useless. A number of colorless derivatives were useless for moth proofing purposes, or they damaged the surface of the treated fabrics.

On the other hand the urea derivatives gave some very interesting results. Compounds such as thiourea, phenylthiourea, allylthiourea, and tolylthiorea showed excellent moth-proofing qualities which appeared to be quite lasting, while other compounds very similar to these, such as allylurea, thiocarbanilide and diphenylthiourea gave negative results. Minaeff and Wright conclude that although Lommel's formula is not significant as far as urea derivatives are concerned, certain generalities can be observed; namely, that

good mothproofing compounds of this group contain sulphur and at least one intact amide group.

It may pay in the long run to generalize the problem even further. The fundamental chemical characteristic of the clothes moth is its ability to digest the keratin of wool in much the same manner that higher organisms digest various protein components of the diet. In general, it has long been known that keratin is not readily digested by the enzymes of the digestive tract of most animal species. In consequence the digestive system of the clothes moth must be equipped with a unique enzyme or series of enzymes capable of hydrolyzing keratin. Such enzymes are conveniently designated as keratinases. It would appear that any rational attack upon the problem of mothproofing woolens should be directed towards a study of the fundamental properties of keratinases. Curiously this does not seem to have occupied the attention of such investigators as have concerned themselves with the problem of mothproofing.

Recently a series of interesting papers on the keratinase of the clothes moth feniola have appeared under the authorship of the noted biochemist K. Linderstrom-Lang and his pupil F. Duspiva (Zeit. physiol. Chem. **227,** 131-158 (1935), **241,** 168 (1936) **241** 177-200 (1936).

These investigators examined the nature of the proteolytic enzymes secreted by the intestinal cells of the clothes moth larvae. The intestinal secretions were found to contain an active proteinase capable of hydrolyzing casein but not wool keratin and keratinase which rapidly effects the hydrolysis of wool keratin.

At the same time it was found that the intestinal enzymes of the larvae of the closely related wax moth galleria resemble in most respects those of the clothes moth with respect to the hydrolysis of proteins other than wool. This of course is in agreement with the known fact that galleria larvae cannot utilize wool as a foodstuff.

Seeking to discover the cause of this difference in the digestive abilities of the two closely related species it was observed that the intestinal secretions of the clothes-moth bore a marked reducing power which is absent from the comparable secretions of galleria larvae. Experimentally this was demonstrated by feeding the larvae of both species bits of wool dyed with indigo disulfonic acid and coated with wax. The wax, of course, prevented any destructive hydrolysis of the wool as it passed through the intestinal tract. Subsequent examinations of the ingested wool fibers disclosed that in the intestine of the clothes-moth larvae the indigo was reduced to the colorless indigo white while no evidence of such reduction could be found in parallel experiments with wax moth larvae.

Further examination of the intestinal secretions of the clothes-moth larvae disclosed the presence of a thiol compound whose nature is as yet undetermined. Apparently this thiol compound is responsible for the high reducing intensity of the intestinal secretions and may be regarded as an important component of the keratin digesting mechanism. Confirmation of this view is to be found in an interesting experiment by Duspiva who utilized the intestinal secretions of galleria larvae—which under natural conditions cannot digest keratin and found that upon the addition of a thiol compound such as cysteine the enzymes present became capable of hydrolyzing wool keratin.

From this it would appear that among the insects the clothes-moth larvae is a nuisance largely because of the intestinal secretion of a thiol compound which renders wool susceptible to attack by proteolytic enzymes.

A question naturally arises as to the mechanism of the action of such compounds in the gut of the larvae. In this connection it is of interest to recall the chemical structure of wool. This substance in common with other native proteins consists of long chains of amino acids linked together as polypeptides. Among the component amino acids is cystine which accounts for approximately 7 to 8 per cent of the wool protein. As a result the structure of wool contains besides the classical polypeptide linkages, present in all proteins, several disulphide linkages which are present in the cystine molecule. Now any disulphide linkage may be ruptured by a sufficiently powerful reducing agent thus

$$\text{R-S-S-R} + 2\ \text{H} \longrightarrow 2\ \text{RSH}$$

Wool is no exception to this rule and one may suppose that in the intestinal tract of the clothes-moth larvae the unknown thiol compound (USH) may function as just such a reducing agent reacting with the wool as follows:

$$\text{R-S-S-R} + 2\text{USH} \longrightarrow 2\text{RSH} + \text{U-S-S-U}$$

As a matter of fact this concept rests upon a firm experimental foundation since in another connection Michaelis and Goddard* have shown that wool may be easily brought into solution by treatment with an alkaline solution of thio glycollic acid which acts towards the wool in a fashion identical with the compound USH in the above equation. Furthermore Michaelis and Goddard observed that a wool solution so prepared upon acidification deposited a mixture of proteins quite different from wool. Important in the present connection is their observation that this reprecipitated wool is easily digested by the pancreatic proteolytic enzyme trypsin which is without action upon native wool.

These observations have important implications in connection with the problem of mothproofing for they indicate an obvious mode of attack. If the wool were treated with an agent which upon ingestion by larvae would oxidize the thiol compounds of the intestinal secretions before the former would reduce the wool, the larvae would starve to death or seek a more appetizing repast. The patent literature is replete with refer-

*D. R. Goddard and L. Michaelis, *J. Biol. Chem.* 106, 605 (1934).

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Scientific Advances in 1937 in

Disinfectants and Antiseptics

By Dr. Emil Klarmann*

Chief Chemist, Lehn & Fink, Inc.

UNLIKE in previous years, during the past year or so, the bulk of significant technical and scientific progress has been reported in patent literature, rather than in technical periodicals. Much of the published information is an expansion of and elaboration upon previous basic findings, and only a very few fundamental advances into new fields appear to have been made.

Theory and Methods

Reference to some of the preceding annual progress reports will show that the attempt has been made repeatedly to connect the mode of antibacterial action with an effect upon one or more bacterial enzymes which are necessary for the maintenance of the biological function of the microorganism. K. Aoki (1) makes another contribution in this direction by showing that different types of disinfectants attack bacteria by affecting different receptors.

Occasionally new suggestions are made for a better evaluation of germicides, the attempt being made better to correlate the destructive effect upon the microörganism with the toxic action on living tissue.

A. J. Salle and collaborators (2, 3) propose the adoption of the "toxicity index," a figure which is obtained by dividing the highest dilution of a disinfectant required to prevent the growth of embryonic tissue, by the highest germicidal dilution. It follows that the smaller this toxicity index, the more perfect the germicidal agent and the more suitable for use on living tissue. The compounds tested gave the following toxicity indices: iodine 0.09, iodine trichloride 0.4, mercuric chloride 2.8, hexylresorcinol 3.0, Metaphen 12.7, phenol 12.9, potassium mercuric iodide 13.3, Merthiolate 35.3 and Mercurochrome 262.0. According to this, an aqueous solution of iodine appears to be the most satisfactory antiseptic. This finding is rather in agreement with that of R. N. Nye (3a) who determined the antiseptic action of a number of compounds in relation to their toxicity to tissue cells.

A series of tests of antibacterial efficacy of several antiseptics, involving the use of cutaneous stapylococcic lesions in mice was carried out by G. A. Hunt (4). Substances of the alkyl phenol and alkyl resorcinol types and their halogen derivatives were able to prevent the skin lesions when administered not later than one hour after the injection of the suspension of the microorganism. Several organic mercury compounds were found to be slow in action; much of their activity could be reversed by washing the injected bacteria with saline or by treatment with hydrogen sulfide.

Contributions of a methodological character have been made also by R. Hanne (5) and E. Gottsacker (6). G. F. Reddish (7), in discussing various aspects of the origin and composition of different antiseptics and disinfectants, opposes the indiscriminate application of the phenol coefficient in describing the antibacterial action of materials not related to phenol.

In continuation of previous work, E. E. Vicher, E. Meyer and E. N. Gathercoal (8) examined the phenol resistance of 14 oral and 5 stock strains of Staph. aureus and found marked differences between the various strains as well as a day to day variation in the resistance of individual strains.

According to E. C. McCulloch and S. Costigan (8a) the official phenol coefficient gives little information as to the comparative value of disinfectants for use in poultry houses.

Alcohols

C. E. Coulthard and G. Sykes (9) confirm the well-known fact that the methyl-, ethyl- and isopropyl alcohols are potent germicides for certain vegetative bacteria, but that they are not effective against spores. The addition to 70% alcohol of 10% of phenol or of a cresol compound did not render them destructive to bacterial spores, even after an exposure of 7 days. They found, however, that the efficacy of a 70% alcohol toward spores can be increased materially by the addition of 1% of sodium or potassium hydroxides, or of hydrochloric, sulfuric and phosphoric acid respectively, or of 10% of amyl meta-cresol. The latter combination is claimed to be particularly suitable for the sterilization of catgut when acid or alkalies cannot be used. The addition of 1% sodium hydroxide to isopropyl alcohol does not render it effective toward spores. Organic acids in 70% alcohol are ineffective as compared with inorganic acids at the corresponding pH.

Phenol Derivatives

Several U. S. patents were issued for alkyl and halogen derivatives of mono and dihydric phenols,

* Reported before the 24th annual meeting, Natl. Assn. of Insecticide & Disinfectant Mfrs., New York, Dec., 1937.

which represent variants on compounds reported previously.

L. E. Mills (10) claims halogenated 4-alkyl derivatives with more than five carbon atoms, such as 4-tert. octyl phenol.

W. F. Hester (11) received a patent for condensation products of tri-isobutylene with a phenol, e.g., tetramethylbutyl phenol.

G. W. Raiziss and LeRoy W. Clemence (12) patented cresylic derivatives of the formula $C_6H_3(OH)(CHEt_2)Me$ and their analogs. The same authors secured a patent covering halogen derivatives of alpha-ethyl-propyl cresols (13) and another for alkyl derivatives of alpha- and beta-naphthols (14).

F. E. E. Stockelbach (15) received a patent covering condensation products of tert. butyl alcohol with a mixture of phenol derivatives derived from coal tar.

According to a patent granted to L. P. Kyrides (16), certain alkylated catechols are more potent germicides than the corresponding alkyl resorcinols; thus hexyl-catechol is said to be superior to hexyl-resorcinol in this respect. The same author (17) received a patent for halogenated phenol derivatives of the type of beta-ethylhexyl chlororesorcinol, beta-ethylbutyl chlororesorcinol, as well as the corresponding bromo derivatives.

W. E. Austin (18) claims compounds of the type of secondary hexyl-, heptyl- and octyl-chlororesorcinols.

Two patents covering alkyl and halogen hydroxy-biphenyls were granted to E. C. Britton, G. A. Coleman and L. E. Mills (19); examples of this group are 3-chloro-4-hydroxy-5-isopropyl biphenyl, 2-hydroxy-3-bromo-5-tert. butyl biphenyl, etc. Another class of hydroxy-biphenyl derivatives is covered by a patent issued to W. G. Christiansen, S. E. Harris and J. Lee (20) of which the following are some examples: 2-hydroxy-5-amyl biphenyl, 2-hydroxy-2-butyl biphenyl, 5-methoxy-5-propyl biphenyl, 2-ethoxy-5-amino-biphenyl hydrochloride, 2-ethoxy-5-carbamido-biphenyl. The compounds are claimed to be efficient antibacterial agents.

A group of hydroxy-aryl-, -alkyl- and -aralkyl-sulfides with antiseptic properties are the subject of a patent granted to E. Miller (21).

E. Klarmann (22) received a U. S. patent for combinations of p-tert. butyl phenol and of its alkyl substitution derivatives with other phenolic substances, the germicidal potency of the mixture exceeding by a considerable margin the theoretical additive effect of the components. The same author (23) was granted a German patent for germicidal compositions containing halogen-hydroxy-diphenylmethane, -ethane and higher derivatives, with phenolic bodies of low molecular weights.

The germicidal action of benzyl phenol derivatives is the subject of a paper by T. S. Carswell and J. A. Doubly (23a) who studied particularly dispersions in sulfonated oils.

A study involving the effect of alkyl substitution upon the germicidal action of 2,4-dibromophenol was carried out by Szu-Liang Chien, Huan-pang Ching and Hsi-Chik Tai (24).

W. H. Engels and J. Weijlard (24a) received a patent covering the alkaline earth salts of p-hydroxybenzoic acid.

Quinhydrone

According to D. P. Glick and L. L. Gee (25), quinhydrone has a greater inhibitory effect upon Es. coli, Staph. aureus and B. subtilis than quinone or hydroquinone.

Hypochlorites

S. M. Costigan (25, 27) studied the effect of alkalinity upon the germicidal action of hypochlorites. Alkaline hypochlorite solutions were found to be more effective against Gram-negative than against Gram-positive microorganisms. On the other hand, hypochlorite solutions of low alkalinity are more germicidal for both groups than solutions of higher alkalinity. The action of hypochlorites appears to be entirely germicidal; bacteriostasis plays no role. To quote an example of the effect of alkali, a hypochlorite solution with 15% of available chlorine and 0.5% of sodium hydroxide was not as effective as one with 35% of available chlorine and 0.13% of calcium hydroxide.

Thiocyanates

E. Baumann (28) reports 1, 5 and 10% solutions of sodium, potassium and ammonium thiocyanates to be bactericidal to tuberculosis germs.

Organic Acids

S. Tetsumoto (29) compared the effects of several hydroxy-aliphatic acids upon Eb. typhi and V. cholerae. Of the following acids: glycolic, lactic, glyceric, malic, tartaric, saccharic and citric, he found the lactic acid the strongest and the citric the weakest. The sterilizing power of the acids appears to decrease with the increasing number of carboxyl groups.

Furan Derivatives

N. M. Phatak and C. W. Leake (30) studied a number of compounds of this class and found the following to inhibit Es. choli and Staph. aureus respectively, in 15 but not in 10 minutes in the dilutions stated: 5-tert. amyl-2-furan carboxylic acid 1:1000, 1:1000; 2,5-dimethyl-3,4-furan dicarboxylic acid 1:2000, 1:2000, etc. Following are examples of derivatives of dibenzo-furan: 1-hydroxy-dibenzo-furan 1:500, 1:500; 1-, hydroxy-2-bromodibenzofuran 1:1000, 1:200, etc.

Quarternary Ammonium Compounds

Activity was continued in this field of new germicidal compounds.

P. G. Heinemann (31) found high phenol coefficients with the compound of the formula $C_6H_5CH_2N(CH_3)_2RCl$. Examples: B. typhosus at 37°C. 271; at 20°C, 176; the corresponding figures in the presence of serum are 72 and 51 respectively; Staph. aureus at 37°C, 293; at 25°C.

275; in the presence of serum the figures are 154 and 104 respectively. Similarly high figures were obtained with Strept. pyogenes and Es. choli. The inhibitory action is also very high; the minimum dilution for Staph. aureus is 1:100,000, for E. typhi 1:10,000. Spores of Trychophyton gypseum are inhibited readily. A limited number of tests on skin disinfection with a 10% solution in distilled water or in alcohol, indicates absence of immediate or delayed skin irritation.

C. G. Dunn (32) also found high germicidal potency and absence of specificity in alkyl-dimethyl-benzyl-ammonium chlorides. Using B. subtilis as test-organism, he found the effect to be greatest at an alkaline pH. Definite bacteriostasis is shown toward the Gram-positive microörganisms, but one of a low order only toward Gram-negative ones.

Two patents covering quarternary bases of high molecular weight, with bactericidal and fungicidal properties were granted to L. Taub and F. Leuchs (33, 34). Example: gamma - dodecyloxy - beta - hydroxy-propyl-trimethyl ammonium chloride.

Organic Sulfo Compounds

A patent covering sulfonium derivatives which are structurally related to the ammonium compounds referred to in the preceding paragraph, was issued to Heyden A. G. (35). Dodecyl - benzyl - methyl - sulfonium methosulfate is an example of this group of disinfectants.

A French patent was issued to Kalle & Co. (36) for disinfectants comprising high molecular sulfines and particularly those containing aliphatic and cyclo-aliphatic radicals of more than six carbon atoms, e.g., the methyl sulfate of dodecyl-benzyl-methyl-sulfine.

The recent interest in sulfanilamide stimulated further work on the in vitro action of this compound. Largely in confirmation of previous findings, R. R. Mellon and L. L. Bambas (37) reported that sulfanilamide does not inhibit the dehydrogenases of pneumococcus, in contrast to other well known bactericidal agents. With the highest concentration used (0.17%), no inhibition of the reducing power of Type I pneumococcus was found. Somewhat in contrast to the above report is that of F. Nitti, D. Bovet and F. Depierre (38) who found that hemolytic streptococcus and some kinds of pneumococcus are killed in vitro by a 1:1000 dilution of sulfanilamide, while Staph. aureus, Es. choli and Eb. typhi mur. survive its action. The p-methyl benzene sulfonamide and the p-acetyl amino-benzene-sulfanilamide have no effect on streptococci.

Organo-Mercury Derivatives

A number of U. S. patents were issued to C. N. Andersen for different groups of germicidal organo-mercury compounds. Following are examples of the groups covered by the several patents: phenylmercury compds. of hydroxy-fatty compds. e.g. oleic alcohol (39); phenylmercury salicylate, gallate, anisate, thiosalicylate, acetyl salicylate, etc. (40); chromate and dichromate (41); phenyl-, diphenyl- and triphenylmercury ortho- and pyroborate (42); phenylmercury chlorate, bromate, iodate and perchlorate (43); phenylmercury p - hydroxybenzoate, beta-resorcylate (44); phenylmercury benzoate, phthalate, trimesate, benzene-pentacarboxylate (45); phenylmercury mandelate, tropate, phenylacetate, hydrocinnamate (46); phenylmercury combinations with alkaloids such as piperine, hydrastinine, atropine, quinine, etc. (47); phenylmercury derivatives of 2, 4-diphenyl thiophene acridine, 2, 6-dimethyl pyridine, quinaldine (48); phenylmercury derivatives of acetamide, benzamide, benzalamide (49); arylmercury compounds of heterocyclic amines and imides, such as phenylmercury phthalimide, N-phenylmercury indole (50); phenylmercury hexahydro - benzoate, camphorate (51); diphenylmercury 3-nitrophthalate, etc. (52).

F. Schönhöfer and W. Bonrath (53) received a patent for alkoxy and alkyl mercury salts of polybasic acids. Organic mercury acid derivatives of dyes were patented by E. Lyons (54). Example: Organo-mercury compound of Rose Bengal S. A. (tetraiododichloro-fluorescein) which may be described, therefore, as an alkali salt of monohydroxy-mercuri-2, 4, 5, 7-tetraiodo-12, 15-dichloro-3, 6-dihydroxy fluoran. The compounds of this patent are said to be effective against B. typhosus and Staph. aureus.

M. C. Hart (55) was granted a patent for mixtures of o-hydroxy-phenyl-mercury chloride with an alkyl cresol (e.g., amyl cresol).

Two patents covering heterocyclic organo - mercury compounds cover such examples as the mercury derivatives of the alkylamide of pyridine-3-carboxylic acid or of 2-allyl-carbamyl-3-pyridine carboxylic acid (56).

According to T. B. Grave, S. E. Harris and W. G. Christiansen (56a) much of the activity of phenyl-mercury compounds is bacteriostatic rather than germicidal.

Silver Compounds

A proprietary silver compound of a hydroxy-benzylidene derivative with strongly germicidal properties, particularly for organisms of the typhoid group, was tested by G. Lockemann and W. Ulrich (56b).

R. Winzer (57) patented disinfectants containing silver salts of boric acids.

Quinoline Derivatives

Bactericidal agents derived from complex quinolines are covered in a patent granted to H. Jensch (58).

F. Boedecker (59) was granted a U. S. patent for the 8-hydroxy-quinoline salt of the 5-sulfo-salicylic acid.

Dyes

Anti-bacterial substances of the class of aryl-azo-diamino-picolines are the subject of a patent issued to H. J. Schneiderwirth (60).

P. F. Mietsch and J. Klarer (61) received a patent covering anti-bacterial azo compounds obtained by

coupling a diaminobenzene with a p-sulfonamide - benzene - diazo - compound.

The photodynamic efficacy of eosine is the subject of a paper by T. T'ung and S. H. Zia (62). When exposed to the light of an electric bulb, the effect upon Gram-positive microorganisms of eosine was increased 10,000 fold. Peculiarly, Mercurochrome was more effective in the absence of light than in its presence. No effect was obtained on Gram-negative bacteria.

Essential Oils

The most active component of oil of bergamot is linalyl acetate, which is three times as active as the oil itself, according to V. Marino (63).

The anti-bacterial properties of oil of mustard were studied by P. Courmont, A. Morel, L. Perrot and S. Sanlaville (64). This oil, consisting of over 99 per cent of allyl isothiocyanate, as well as artificial oil of garlic (allyl sulfide), were germicidal to Koch's bacillus. Concentrations eight to ten times as great as for this microörganism, were required to kill other species of bacteria.

The vapors escaping from freshly crushed garlic and onions are actively bactericidal, but the allyl sulfides and related compounds, which give garlic its typical odor, show only a comparatively weak bactericidal action. R. E. Vollrath, L. Walton and C. C. Lindegren (65) attribute the effect of these vapors to acrolein or to some related unsaturated aldehyde.

J. Risler (66) reports that a mixture of different essential oils produces a prolonged antiseptic action which is more effective than that of the compounds used singly.

N. F. Materials

Liquor Antis. N.F. VI passes the F.D.A. tests for liquid antiseptics and reduces the bacterial count in the oral cavity to a very significant extent, according to G. F. Reddish (67).

L. C. Britt (68) finds the Calomel Ointment of the N.F. VI less antiseptic than that of the N.F. V. A revision of the formula is needed.

Technical Materials

Considerable germicidal potency appears to be present in the nitrogen bases from transformer oil extract, according to an investigation by W. N. Axe, D. D. Henson and V. T. Schuhardt (69). A composition comprising isopropyl alcohol, a sulfonate from petroleum oils and an alkyl phenol with from 4 to 10 carbon atoms in the alkyl group, is the subject of a patent granted to R. Schuler (70). A report on the germicidal action of oil sprays was published by J. C. Varley (71).

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DERRIS VERSUS CUBE

Is Cube Equal to Derris as an Insecticide?

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STATEMENTS have been published recently by the English and Dutch growers of derris in Malaya and Sumatra to the effect that derris is definitely superior to cube in insecticidal action even when the two are compared on a basis of equal rotenone content and approximately equal total-ether-extract content. Inasmuch as the United States is now importing nearly 2 pounds of cube to 1 pound of derris for use in the manufacture of rotenone-containing insecticides, it is well for us to know if these statements are true.

The exact botanical origins of the cube powder and the derris powder on the American market are unknown. Furthermore, the composition of both these roots fluctuates widely. It is believed that most of the derris root sold for use as an insecticide is derived from *Derris elliptica*, but some is derived from *D. malaccensis*. The variations and differences in composition of these two species have been shown by Milsum and Georgi (Malayan Agr. Jour. 25:239, 1937) to be very great. Their figures show a range on a moisture-free basis of from 0 to 13 per cent in rotenone content and from 5 to 31.5 per cent in total-ether-extractives content of different strains of these two species. The range of these values in Lonchocarpus root is fully as great. Obviously, comparisons of the insecticidal effectiveness of derris and cube should be made only on the basis of equal content of toxic constituents.

The writer has selected the following comparisons of cube and derris from a larger number reviewed in Multigraphed Circular E-367 of the United States Department of Agriculture, Bureau of Entomology and Plant Quarantine, and in a supplementary circular now in process of publication. Many entomologists have compared derris and cube of unknown composition or have compared derris or cube with a proprietary rotenone insecticide of unknown origin and composition, but these comparisons are not included in this paper.

Campbell, Sullivan, and Jones (Soap 10(3):81) in 1934 found kerosene extracts of derris in general more effective than similar extracts of cube when sprayed on house flies (*Musca domestica* L.). The percentages of house flies dead in 3 days ranged for the derris roots from 85.2 to 91.7 and for the cube roots from 68.2 to 92.5. These investigators concluded that rotenone is not the only toxic component of the kerosene extracts of these roots.

Jones and Smith (Soap 12(6): 113) in 1936 proposed a formula for evaluating the toxicity to house flies of derris and cube by chemical analysis. For derris the formula is: Toxicity = rotenone + 0.5 (total extractives — rotenone). For cube the value 0.5 in this formula is replaced by 0.4. On this basis a sample of derris containing 5 per cent of rotenone and 20 per cent of total extractives would have a toxicity value of 12.5 as compared with 11 for a sample of cube of the same rotenone and total extractives content. This difference is slight, indicating that derris is only about one-seventh more toxic than cube to house flies.

Spoon et al. (Ber. Afd. Handelsmus. Kolon. Inst. [Amsterdam] 110) in 1937 compared the relative insecticidal values of dusts made from derris and cube. Eight sets of powders were prepared, each set consisting of one powder prepared with derris and another with Lonchocarpus, both powders containing equally high percentages of rotenone and ether extract. These powders were mixed with diatomaceous earth to obtain dusts of definite rotenone content (0.5, 0.75, and 1 per cent), according to the sensitivity of the various insects. The dusts containing 0.5 per cent of rotenone were tested on larvae of *Lophyrus pini* L. and *Myrmica rubra* L.; those with 0.75 per cent rotenone on caterpillars of *Euproctis chrysorrhoea* L. (= *Nygmia phaeorrhoea* Donov.) and on *M. rubra* L.; those with 1 per cent rotenone on *M. rubra* L. only. The results are based on the observation of at least 120 specimens and are expressed in percentages of dead insects after 24 hours. In seven of the eight sets the effect of derris is greater than that of Lonchocarpus.

* Address before 24th annual meeting, Natl. Assn. of Insecticide & Disinfectant Mfrs., New York, Dec., 1937.

The effect of derris dust on caterpillars of *Nymia phaeorrhoea* and on larvae of *Lophyrus pini* is about one and one-half times as strong as the effect of Lonchocarpus dust; and on *Myrmica rubra* the effect of derris is twice as strong as that of Lonchocarpus.

Ginsburg and Granett (N. J. Agr. Expt. Sta. Bull. 581) in 1935 reported tests made against *Aphis rumicis* on nasturtiums with derris (5 per cent rotenone and 17.9 per cent acetone extractives) and with cube (5 per cent rotenone and 16.7 per cent acetone extractives). The comparison was made in application of dusts, water suspensions, and acetone extracts. There were small differences in mortality in favor of derris.

Orchard tests made at Parma, Idaho, by Haegele (U. S. Dept. Agr., Bur. Ent., Mimeo. Rept. 1934, 19 pp.; and Mimeo Rept. 1935, 44 pp.) and at Hood River, Oreg., by Childs (U. S. Dept. Agr., Bur. Ent., Mimeo. Rept. 1935, 44 pp.) against larvae of the codling moth (*Carpocapsa pomonella* L.) included a derris-kaolin mixture containing 1 per cent of rotenone and a cube-kaolin mixture of equal strength. Neither material appeared to have much effectiveness in the control of the codling moth. Although both resulted in fewer stings, there were more worms per 100 apples than when lead arsenate was used.

The Ohio Agricultural Experiment Station (Ann. Rept. 55:47) in 1936 reported that a cube-gypsum dust was significantly less effective than a derris-gypsum dust (both containing 0.5 per cent of rotenone) in controlling the strawberry leaf roller (*Ancylis comptana* Froel.). The cube dust gave 47.2 per cent control and the derris dust gave 75.7 per cent control.

Batchelder et al. (Conn. Agr. Expt. Sta. Bull. 395:273) in 1937 reported cube dust to be inferior to derris dust in controlling the European corn borer (*Pyrausta nubilalis* Hbn.) in Connecticut.

Beard (Conn. State Ent. Rept. 36:391) in 1937 reported no perceptible difference between cube dust and derris dust, each containing 0.6 per cent of rotenone, in killing the striped cucumber beetle (*Diabrotica vittata* (F.)) on hubbard squash in Connecticut.

Steer (East Malling Research Sta. Rept. 1933) in 1934 reported the results of experiments on the control of the raspberry and loganberry beetle (*Byturus tomentosus* Fab.) in Kent, England. A derris spray containing 0.0054 per cent of rotenone was compared with a cube spray containing 0.0064 per cent of rotenone. No differences in results were detected either at ony one time during the picking season or for the whole season.

Weigel and Nelson, of the Beltsville, Md., laboratory, of the Bureau of Entomology and Plant Quarantine, reported in 1936 (News Letter) that in greenhouse tests against *Thrips tabaci* Lind. on cucumber plants cube spray was not so effective as derris spray, both diluted to a rotenone content of 0.0056 per cent and containing sulfonated castor oil as a wetting agent.

Felt and Bromley (Jour. Econ. Ent. 30:71) in 1937 reported cube to be slightly less effective than derris when applied as spray against shade-tree insects in Connecticut.

Dudley, Bronson, and Carroll (U. S. Dept. Agr., Bur. Ent. and Plant Quar., Multigraphed Cir. E-400) in 1937 reported no difference in the value of derris and cube sprays for the control of the pea aphid (*Illinoia pisi* (Kalt.)). A spray containing not less than 0.005 per cent of rotenone applied at the rate of 144 gallons per acre increased the yield of peas about 100 per cent.

Richardson (Jour. Econ. Ent. 28:1076) in 1935 reported both derris and cube to be effective against the common red spider (*Tetranychus telarius* L.) on greenhouse plants. When used as a spray with sulfonated castor oil as a wetter at a rotenone concentration of about 1:8,000, cube killed 97.2 per cent of the adults and 96.6 per cent of the nymphs as compared with 99.2 and 99.5 per cent, respectively, killed by the same concentration of derris.

Fleming and Baker, of the Moorestown, N. J., laboratory of the Bureau of Entomology and Plant Quarantine, reported in 1936 (News Letter) results of tests of insecticides against the Japanese beetle (*Popillia japonica* Nwm.) under controlled laboratory conditions. Cube and timbo with rotenone content and total extractives equivalent to those of derris were only half as effective as repellents.

Hammer (Jour. Econ. Ent. 29: 215) in 1936 recorded tests made in New York for the control of the gooseberry fruitworm (*Zophodia grossulariae* [*Riley*]) on currants. As a spray derris gave slightly better results than cube, but when used in dusts there was no apparent difference in toxicity between derris and cube. The dusts were slightly inferior to the sprays.

Howard, of the Columbus, Ohio, laboratory of the Bureau of Entomology and Plant Quarantine, reported in 1936 (News Letter) tests against the Mexican bean beetle (*Epilachna varivestis* Muls.) in Ohio. As a spray cube was approximately equal to derris in effectiveness, but derris dusts appeared to be slightly superior to cube dusts. Sprays are recommended in preference to dusts for bean beetle control.

The South Carolina Agricultural Experiment Station (Ann. Rept. 48:47) in 1935 found cube to compare favorably with derris of equal rotenone content either as a dust or as a spray against the Mexican bean beetle.

Chamberlin, of the Quincy, Fla., laboratory of the Bureau of Entomology and Plant Quarantine reported in 1934 (Monthly Letter) that both cube and derris dusts diluted to 1 per cent rotenone with tobacco dust or kaolin gave good control of light infestations of the tobacco flea beetle (*Epitrix parvula* F.) on shade-grown tobacco. In 1936 Chamberlin (Jour. Econ. Ent. 29:217) reported further laboratory tests with cube and derris against the tobacco flea beetle. The cube and derris were diluted to a rotenone content of 0.05 per cent. The cube dust gave an average of

85.7 per cent dead; the derris dust an average of 85.1 per cent dead.

Chapman and Cavitt, of the Presidio, Tex., laboratory of the Bureau of Entomology and Plant Quarantine, in 1934 reported (typewritten report) laboratory tests with first-instar pink bollworms (*Pectinophora gossypiella* [Saund.]). Derris dust diluted to 0.75 per cent rotenone with flour killed 86.5 per cent in 2½ hours; cube dust of equal strength killed 100 per cent in 2½ hours.

Cassidy and Barber, of the Tucson, Ariz., laboratory of the Bureau of Entomology and Plant Quarantine, in 1934 reported (typewritten report) the following results obtained in cage and lantern-globe tests in Arizona:

Insect	Per Cent Control: Cube Dust	Derris Dust
Stictocephala festina Say	80	55
Lygus sp.	70	80
Euschistus impictiventris Stal	43	38
Chlorochroa sayi Stal.	0	22
Dysdercus mimulus Hussey	26	10

Cassidy and Barber reported in 1935 (typewritten report) that in plat tests cube was less effective (45.2 per cent control) than derris (62.8 per cent control) in controlling the following hemipterous cotton insects in Arizona: *Euschistus impictiventris* Stal, *Chlorochroa sayi* Stal, *Thyanta custator* F., *Dysdercus mimulus* Hussey, and *Lygus hesperus* Knight.

Smith, Clark, and Scales, of the Tallulah, La., laboratory of the Bureau of Entomology and Plant Quarantine (typewritten report), obtained the following mortalities in 1934 in cage tests with cube and derris containing 4 per cent of rotenone when applied as dusts:

PER CENT MORTALITY

Dust	Boll weevil Anthonomus grandis: Boh.	Leafworm Alabama argillaceae: Hon.	Lygus apicalis Fieb.: Adults	Lygus apicalis Fieb.: Nymphs
Cube	75	59.7	41.5	44.8
Derris	91.6	73.3	51.6	41.1
Check	32.8	1.4	18.8	13.7

Smith and Scales in 1936 reported (typewritten report) that in cage tests dusts of derris and cube diluted with sulphur were about equally effective against the boll weevil and the leafworm, but that cube was slightly better than derris against the tarnished plant bug (*Lygus pratensis* L.).

Campbell, of the Alhambra, Calif., laboratory of the Bureau of Entomology and Plant Quarantine, found in 1934 (typewritten report) that in cage tests cube dust killed 54 per cent of pepper weevils (*Anthonomus eugenii* Cano) as compared with 51 per cent of derris dust. Both dusts contained 1 per cent of rotenone. Field tests were conducted on cabbage with cube and derris dusts containing 0.5 per cent of rotenone. Applications were made at 22 pounds per acre for derris and 30 pounds per acre for cube by means of hand dusters. Derris caused a reduction of 75 per cent and cube of 34.4 per cent in numbers of loopers (*Autographa brassicae* Riley); derris destroyed 54 per cent of cabbage worms (*Ascia rapae* L.) as compared with 47.7 per cent for cube, and derris destroyed 58.6 per cent of the diamondback caterpillars (*Plutella maculipennis* Curt.) as compared with 60.5 per cent for cube. Campbell reported in 1935 (News Letter) that laboratory tests at Alhambra, Calif., against the imported cabbage worm showed cube dust to be slightly more toxic than derris dust with an equal rotenone content. Talc was used as a diluent in each case, and applications were made with a precision duster at a dosage of 1 gram per plant.

Howard and Davidson, of the Columbus, Ohio, laboratory of the Bureau of Entomology and Plant Quarantine, reported in 1935 (News Letter) no significant difference in the degree of control of cabbage worms obtained from the use of derris or cube dusts or sprays, provided the rotenone contents of the insecticides were practically equivalent.

Walker and Anderson (Jour. Econ. Ent. 28:603) in 1935 reported that, based on rotenone content, a cube dust did not seem to give quite so satisfactory control of larvae of the cabbage looper (*Autographa brassicae* Riley) and larvae of the diamondback moth (*Plutella maculipennis* Curt.) as did a derris dust.

List and Sweetman (Jour. Econ. Ent. 28:298) in 1935 tested cube and derris on cabbage worms (*Ascia rapae* L.) in Colorado, and found the two to be of equal value when diluted to a rotenone content of 0.5 per cent.

Howard, of the Columbus, Ohio, laboratory of the Bureau of Entomology and Plant Quarantine (typewritten report), in 1934 tested derris and cube against cabbage worms and reported that "cube root when used either as a dust or in water as a spray gave similar results to derris providing the rotenone content was the same."

Huckett and Hervey (Jour. Ent. 28:602) in 1935 compared the effectiveness of cube dust and derris dust against three species of cabbage worms. The derris contained 5.3 per cent of rotenone and 21 per cent of total extractives; the cube contained 5.1 per cent of rotenone and 20 per cent of total extractives. Both were diluted to 0.33, 0.50, or 1.0 per cent rotenone content with talc or other diluents. Applied as a dust cube compared favorably in effectiveness with derris, but spray mixtures containing derris were slightly more effective than those containing cube.

Walker and Anderson (Jour. Econ. Ent. 30:443) in 1937 reported that a derris-Aresket-talc dust gave 82 per cent control of larvae of the diamondback moth (*Plutella maculipennis* Curt.) and a cube-Aresket-talc dust of the same rotenone content (0.5 per cent) gave 87 per cent control. The dusts were applied at the rate of about 25 pounds per acre.

The New York Agricultural Experiment Station (Ann. Rept. 55: 54) in 1937 stated that powdered derris, cube, and timbo of comparable analytical quality were about equally effective in controlling the imported cabbage worm. Against the Mexican bean beetle derris in sprays and dusts was slightly superior to cube.

Discussion

Laboratory and field tests indicate that in the control of some insects derris gives better results than cube of the same rotenone content,

(*Turn to Page* 120)

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Hotel Sanitation and Insect Control

By Warren D. Lewis*

National Hotel Management Co.

EVERY hotel has its own sanitation and insect control problem. The degree to which this is a problem is determined to a great extent by the maintenance and operation of the particular hotel in question. This does not mean that an old hotel is harder to maintain in a sanitary condition than a new one if it has been taken care of from the beginning of its operation. I might say here that in our experience as an operating company we are frequently called upon to inspect properties, and I have found that the sanitation and insect problem is directly proportional, if you wish to put it that way, to the way the houses has been maintained.

In discussing this subject, I must necessarily speak more of the Hotel New Yorker, as I am not only more intimately acquainted with its problems, as I make my headquarters there, but also due to the fact that it is more or less the "mother hotel" of our group, and our present system of control of these matters has been more or less developed at the New Yorker. The National Hotel Management Company has one policy which is the most important one I can mention in my talk to you, and that is never to let a property run down,—or, in other words, don't milk the property to its own detriment. This is so basic in the subject I am discussing that I want to mention it before I start into the various problems you are interested in. At the Hotel New Yorker, we try out many ideas on all subjects, not alone the one we are discussing, but everything we think will work out to the benefit of our hotels, and those that are adopted are sent out in the form of "setups" to be followed, except in special cases, by everyone in all hotels under our direction. Naturally our group of Hotels are fairly substantial buyers of many sanitary products, such as disinfectants, deodorants, insecticides, cleansers and soaps.

Any new building presents many problems in sanitation and insect control even when turned over for operation by the builders, and as a hotel gets older these problems will constantly arise and if not handled promptly and properly will become chronic and make the job of overcoming them quite difficult later on. To begin with, we have found that plenty of illumination is one of the biggest aids to our problem, and Mr. Ralph Hitz particularly might be called a crank on this subject, as he insists that no hotel can be properly kept clean and in a sanitary condition unless light is plentiful, so that the corners and other dark spots may be clearly visible, and I believe that the Hotel New Yorker is probably the best example of this of any of our hotels, being the newest one.

Sanitation in any building, I believe, can be said to start with the plumbing, and a good plumbing system to start with would make the rest of the job much easier. We are very fortunate in the Hotel New Yorker in having a well-laid out plumbing system, and any changes or improvement which we have made have been to better the plumbing system and not to take any short-cuts which would lessen its efficiency. I might cite for an example that dead-end floor drains have been eliminated wherever possible by having a near-by sink flush through this drain and thus keep it in a sanitary condition.

Our concrete and tile floors are scrubbed or mopped daily with water containing some jellied soap with pine disinfecting qualities, so that there will be no odor or other troubles arise from this washing. Linoleum and rubber tile in the front portions of the building are cleaned every night with a damp mop, which has been dipped in water containing a small amount of jellied soap. Our passenger elevator cars have rubber tile floors, which are also mopped and waxed daily; and, in addition, rubbed off several times during the day to keep them in perfect condition. I might add here that we have found that asphalt tile stands up better against greases and other liquids in our dining rooms, which is very desirable, as a loose or missing tile presents a serious sanitation problem. Marble and terrazzo floors are scrubbed and mopped, but never waxed, as that makes them too slippery for our use, and a thorough mopping with clean water after scrubbing keeps them bright and in good condition.

The walls in our corridors in the service portion of the building are painted yearly and washed between times, using a disinfecting soap, while the corners in the service corridors at the floor level are painted white to prevent any accumulation of dirt.

We are having our urinals cleaned by an outside contractor once a week, who uses a very strong chemical, and this keeps them in a sanitary condition, as I believe these are one of the most unsanitary fixtures used in the average hotel, if not cleaned properly. I might add that we use disinfecting cakes in urinals to create a pleasant odor and not to cover up one which should not exist. In this connection, toilet bowls are also given somewhat similar treatment for a like purpose.

Employees' lockers are cleaned out regularly and nothing is ever

* Address before 24th Annual Meeting, Natl. Assn. of Insecticide & Disinfectant Mfrs., New York, Dec., 1937.

permitted to remain either above or below a locker, whether old shoes, clothes or whatnot. Cleaning our lockers regularly is apt to eliminate a great deal of discarded clothing, etc., which is bound to create odors. As far as our employees are concerned, before they are hired, they are subjected to a very strict medical examination, and those who are not, shall we say medically sanitary, are not permitted to become members of our organization. Our washrooms are plentifully supplied with wash basins, and employees at all times must adhere to the rule to wash their hands, using a high germicidal content soap, even though they enter the locker for no other purpose than to get something from their locker. Waiters, waitresses, and other employees in our dining rooms, and in contact with the public, have their hands and finger nails inspected before going on duty, as well as their clothing and general appearance. We also make a practice, especially in hot weather, to display bulletins advocating frequent changes of clothing and bathing, as well as keeping the body in good physical condition to eliminate bad breath and other disagreeable features of this type.

For dish washing we use a soap compound of our own specifications with water at about 180 degrees, so that all dishes and other tableware will be absolutely clean. Silver, likewise, is cleaned by a special soap, purchased for that purpose to eliminate any chance of food contamination.

At the Hotel New Yorker, we are fortunate in having the largest private laundry in any hotel, and here we use not only good soap to clean and preserve our linens, which as you are aware it is to our advantage to do, but we also use hot water at approximately 180 degrees temperature to eliminate any chance of germs adhering to the cleaned clothes.

We have a number of cold water supply tanks up through the buildings, as well as in the basement, due to the height of the New Yorker, and these are cleaned and washed out yearly and painted with a non-tasting paint to preserve their sanitary condition. Hot water heaters are also cleaned out, twice yearly, for the same reason.

I have tried in the above to outline briefly most of the sanitary conditions we overcome and the reasons we find it advantageous to do so. There is another subject, which enters into our discussion, and that is the building repairs and maintenance, as we do everything possible to eliminate holes, cracks, and loose plaster, or other items of construction, which not only produce an unsanitary condition, but are hiding places for vermin.

In our kitchens, we have found it necessary to replace and renew a great deal of the tile which has become loose, grouting in the remainder to eliminate any cracks or crevices.

In our guest bathroom, we also grout in the tile for a similar purpose.

Throughout the basements of the New Yorker, we have considerable steel wainscoting, and some of this has become loose and has been replaced by cement wainscoting, which we have found just as durable as the steel and much better from a sanitary standpoint.

Where piping comes through floors, and it is possible, we have built up a cement curb around it, several inches above the floor with a sloping top to eliminate dirt pockets.

Naturally, any plaster which is loose or cracked is replaced, as necessary.

Another thing which has helped us a great deal is the installation of steel corner angles. Originally, we put these over the tile and plaster to protect them, but we have since found that removing the tile and setting the corner angle in flush has made not only a more durable job, but one where there are no cracks or other places for dirt or vermin to lodge.

I might add that our garbage sorting room came in for special attention, as I think we are all agreed that garbage is one thing which attracts insects, and the policies mentioned have been very carefully carried out in this room.

Rubber tile floors are kept in first-class condition, as it is realized that if tile is not replaced, or the cracks between it closed, the sanitary condition is gone immediately, especially if milk or other liquids are spilled on the floor. In our corridors, when possible, we have removed the square base and installed a sanitary base which eliminates another dirt pocket.

All of the preceding we have found extremely desirable to promote not only a sanitary condition, but to cut down on the troubles and cost of our insect control. I have purposely left the question of insect control as the final topic to discuss, as with proper sanitation and good building maintenance as outlined previously, this problem is reduced to a minimum.

I would like to mention mosquitoes as the first item, as we occasionally have them outdoors on our high terraces at the New Yorker when a friendly wind from the Jersey shore carries them across the Hudson. However, they are easily eliminated with a liquid spray and cause us very little trouble. Flies also are not very numerous and with a liquid spray are exterminated as soon as discovered.

Moths are something we have very little trouble with at the New Yorker; in fact, it is a rarity to see any. However, a couple of our hotels, especially one in the South, create a problem and are only kept down by continual spraying with an insecticide and a close check on the condition of the material.

With the New Yorker being a fireproof building and space being at a premium, we never have a great deal of goods stored, which eliminates the breeding of rats and mice, and when these are found, they are promptly caught and destroyed.

Bed bugs are naturally brought in from the outside on clothing, as even though people are exceptionally clean, they may acquire them in our well used subways and taxis. It is our policy in any room where the bugs are found to promptly spray the furniture and the room in gen-

(*Turn to Page* 127)

Insecticide Literature and Patents

By John Curlett*

McCormick & Company

THIS report is a review of more important papers that have been published during 1937 on Pyrethrum, Derris and Synthetics. This review while not complete, includes all of the more important contributions on the subject of household insecticides.

The Committee wishes to express its thanks to Dr. Roark for his kind assistance in assembling this report.

Pyrethrum

G. R. Rinke (Soap XIII (1): 101-103, 112, Jan., 1937) discussed the pyrethrum outlook with especial reference to the supply. R. V. Wilson (Soap XIII (2): 94-95, Feb., 1937) reported that neither confectioner's glaze, rubber, glucose, solder nor foil lined caps in cans have a deteriorating effect on pyrethrum fly sprays packaged in these cans. Charles L. Smith (Jour. New York Ent. Soc. 44: 317-338) found finely ground pyrethrum powder to kill mosquito larvae and bean aphids more quickly than a coarse powder. However, the fine powder deteriorates more rapidly. This decomposition may be retarded by the addition of tannic acid or titanium oxide. H. Rosen and M. R. Thompson (J. Am. Pharm. Assoc. 26, 631-42 [1937]) found no volatile active constituent in pyrethrum flowers. Pyrethrum acts principally on the spinal cord producing first a transitory stimulation followed by a depression and paralysis of a distinctly ascending type. J. T. Martin (Jour. Soc. Chem. Ind. 56: 91T, 1937) reported that pyrethrum kills insects by destroying cells of the central nervous system. H. L. Haller and F. B. LaForge (J. Org. Chem. 2, 49-55, 1937) prepared hydrogenated derivatives of the Pyrethrins. These products are less toxic than the original pyrethrins to house flies. M. Covello (Soap XIII [9]: 117, Sept., 1937) reported that Italian pyrethrum seems to be equal to the Dalmatian and Japanese flowers. V. A. Beckley and F. McNaughtan (East African Agr. Journal 2, 327-38, 1937) reported that quick drying in the sun of pyrethrum flowers did not affect the pyrethrin content but prolonged sun and shade drying caused appreciable loss. Artificial drying at temperature up to 122° F. did not affect the pyrethrin content. An anonymous writer in the Manufacturing Chemist (8: 87) prepares a colorless extract of pyrethrum flowers by mixing the finely powdered plant material with decolorizing carbon and extracting in a Soxhlet with petroleum ether. H. Klinger (Arb. physiol. angew Entomol. Berlin-Dahlem 3, 49-69, 115-51) studied the action of pyrethrum and derris on insects. The susceptibility of various species to the poisons is largely dependent on the permeability of the cuticle and the nature of the nerve system. A. Kelsall and H. T. Stultz (67th Ann. Rept. Entomol. Soc. Ontario, 20-29) found pyrethrum dust effective against more kinds of insects than was derris dust but on the other hand derris was effective against several species against which pyrethrum was not satisfactory.

R. C. Roark (Soap XIII [3]: 94, 95, 97, 111, March, 1937; and Soap XIII [11]: 94-97, 99, Nov., 1937) summarized patents on disinfectants and insecticides, including pyrethrum, derris and synthetics. Muskat (U. S. Pat. 2,066,737) makes pyrethrum extract by immersing the flowers in petroleum distillate for less than one hour. Wittwer and Beakes (U. S. Pat 2,071,484) make an insecticidal composition comprising pyrethrum extract, a cocoanut fatty acid derivative of a dixylyl guanidine, and a free cocoanut fatty acid, in solution in naphtha. Ripert (U. S. Patent 2,074,188) prepares an insecticidal spray by dissolving pyrethrins in glycols and glycol ethers. Gnadinger (U. S. Pat. 2,087,028) prepares a water soluble insecticide from a pine oil solution of the oleo-resin of pyrethrum and an alkali free vegetable oil soap. Simanton (U. S. Pat. 2,089,-766-7) prepares an insecticide by dissolving pyrethrins and rotenone in ethylene or diethylene glycol monoethyl ether acetate. Coe (U. S. Pat. 2,090,109) protects rotenone or pyrethrum powder against deterioration by light by coating the particles with chlorophyll. Gnadinger (U. S. Pat. 2,092,308) prepares an insecticide by mixing an inert filler with an extract of pyrethrum in a non-volatile solvent. Donlan (U. S. Pat. 2,096,885) prepares an insecticide by dissolving an extract of pyrethrum or derris in mineral oil of 300° F. to 600° F. boiling range consisting predominantly of paraffinic hydrocarbons.

Biological Testing Methods

A. E. Badertscher (Soap XIII [9]: 93, 95, 97, 99, 101, 103, 105, 107, 109, Sept., 1937) discussed semi-concentrate sprays and the proper method of their evaluation. W. N.

* Report of Committee on Insecticide Literature and Patents before 24th annual meeting, National Assn. of Insecticide & Disinfectant Mfrs., New York, Dec., 1937.

Sullivan (Soap XIII [9]: 88, 89, 91, Sept., 1937) also reported a method for the evaluation of semi-concentrate fly sprays. J. H. Ford (Soap XIII [6]: 116, 117, 119, June, 1937) proposed a method for standardizing Peet-Grady results. The observed value of the per cent kill of an unknown is adjusted to that corresponding to a 50 per cent kill for the official control insecticide. A. G. Grady (Soap XIII [1]: 110-112, Jan., 1937) commented on the Peet-Grady test. W. A. Simanton (Soap XIII [10]: 103, 105, 107, 115, Oct., 1937) discussed the evaluation of liquid insecticides by the use of the Official Control Insecticide. W. F. Kroneman (Soap XIII [7]: 101-102, July, 1937) discussed the need for specialized insecticide testing methods especially methods for evaluating insecticides for use against crawling insects. F. Munger and E. H. Siegler (Soap XIII [10]: 94, 95, 97, Oct., 1937) described two methods, namely, the poison-pill and rubber collar for testing insecticides against the American cockroach. E. L. Griffin (Soap XIII, 1: 98-100, Jan., 1937) discussed the labeling of insecticides. The Food and Drug Administration recognizes the total ethyl ether extractives of derris root or cube root and the total petroleum ether extractives of pyrethrum as active constituents.

Rotenone, Derris and Cube

According to Neathery (Econ. and Trade Note, No. 126) Asst. Trade Commr. at Bogota, Colombia, the Colombian government is interested in exploiting the rotenone-bearing plants of that country, some of which contain over 5 per cent of rotenone. R. B. Stoddard (Soap XIII [4]: 95, 97, 99, April, 1937) discussed agricultural insecticides especially the growing trend toward derris, cube and pyrethrum. R. C. Roark (E-402) reviewed the literature on *t*ephrosia, 13 species of which contain rotenone. *T. virginiana* from Texas may contain more than 3 per cent of rotenone and promises to be of commercial value as an insecticide. Wille, Ocampo, Weberbauer and Schofield (Ministerio de Fomento, Bull. 11) of the Agricultural Experimental Station at La Molina, Peru, have recently published a bulletin of 117 pages, 26 figures and 163 references on cube and other barbascos of Peru. The following topics are discussed; the botany, cultivation, chemistry, use as an insecticide and commercial importance of cube.

Derris and cube have been used successfully for the control of the following agricultural insect pests: Mexican bean beetle, cabbage worms, tobacco flea beetle (U. S. Bur. Ent. and Plant Quarantine E-376); pea aphid (E-400); currant worm (Ill. Agr. Exp. Sta. Circ. 447); gooseberry fruit worm (New York Agr. Exp. Sta. Ann. Rept., 1936); striped cucumber beetle (Conn. State Ent. Rept. 36) and European corn borer (Conn. Bull. 395). Milsum and Georgi (Malayan Agr. Jour. 25: 239-245) have studied the cultivation of derris in Malaya. They found that the proportions both of rotenone and of ether extract in a specific strain of Derris remain constant within limits for successive generations. A. M. Ambrose and H. B. Haag (Ind. Eng. Chem. 29: 429-421, 1937) found the acute oral toxicity of rotenone when fed to dogs to be more than 2 grams per kilogram of body weight. There seems to be little danger of acute poisoning from the ingestion of rotenone or the other constituents of derris and cube. H. B. Haag (Soap XIII, 1: 112-c - 112-d, 137, Jan., 1937) reported that rotenone is 1/30 as toxic as lead arsenate and only 1/700 as toxic as strychnine by mouth to the rabbit. F. Ra, A. Japanese investigator (Soap XIII, 6: 131, June, 1937) has studied the toxicity of rotenone. When injected intravenously, the lethal dose for rabbits was 5 mg. per kg. of body weight. Gooden and Smith (Jour. Amer. Chem. Soc. 59: 787-789) have reported the principal optical and physical properties of the carbon tetrachloride solvate of rotenone. Cassil (U. S. Dept. Agr. Bur. Ent. and Pl. Quar. News Letter 4 [9]: 34, mimeo.) reported that the maximum derris residue remaining on cabbage after 6 applications was only .8 parts per million. Five-sixths of this was on the four outer leaves, which normally are discarded before the cabbage is sold to the retail trade. R. R. LeG. Worsley (Jour. of the Society of Chemical Industry 56, 175-6T, 1937) found Mundula to be nearly three times as toxic as derris with an equal content of optical constituents. R. R. LeG. Worsley (Jour. of the Society of Chemical Industry 56: 15T-23T, 1937) found no correlation between toxicity and ether extract or rotenone content in derris. However, a direct correlation was found between the dehydro compounds and toxicity to one species of aphis. W. Spoon et al (Indische Mercuur 60, 259-61, 275-7, 1937) reported that derris has 1½ to two times the insecticidal value of cube of the same rotenone and ether extractives content. Derris powder may be distinguished from the cube powder by microscopic examination. Nineteen samples of commercial derris powder were examined; ten were genuine; three were mixed with powdered cube root; and six consisted exclusively of cube. W. M. Seaber (Jour. Soc. Chem. Ind. 56: 168T-173T, 1937) determines rotenone in derris root by extracting with cold chloroform and crystallizing from carbon tetrachloride. H. A. Jones (Ind. Eng. Chem., Anal. Ed. 9: 206-210, 1937) reported that accurate results in the determination of rotenone in derris root were obtained only when the rotenone present was equivalent to at least 4 per cent of the root. If necessary rotenone should be added to bring its content up to this level. C. D. V. Georgi and G. L. Teik (Malayan Agr. Jour. 24: 489-502) emphasized that derris roots be sufficiently air-dried before shipment. Moisture determinations are best made by the xylene distillation method. A. Caminha, Jr. (Bol. ministerio agr. Brazil 24, 15-25) reported that the rotenone content of *Lonchocarpus urucu* from Brazil ranges from 5 to 12 per cent. W. M. Boyd (Soap XIII, 6: 125, 129, June, 1937) discussed rotenone in household insect control. J. J. Boam, R. S. Cahn and A. Stuart (Jour. Soc. Chem. Ind. 56: 91T-96T, 1937) have reviewed Merz's work on tephrosin and deguelin and point out that his isodeguelin is identical with deguelin and allotephrosin is identical with tephrosin. F. L. Begtrup

(Dansk. Tidsskrift Farmac. 1937: 6-12) determines rotenone in derris by extracting the 100-mesh powder with toluene and recrystallizing from carbon tetrachloride.

Chromek (German Patent 643,804; issued April 17, 1937; applied for February 7, 1932) patented a mixture of derris powder 7 parts; hexachloroethane 12 parts; ammonium linoleate 4 parts; petroleum 25 parts; methyl salicylate 2 parts and water 50 parts. Hunn (U. S. Pat. 2,087-599; issued July 20, 1937; applied for Sept. 8, 1932; assigned to Stanco, Inc.) makes an insecticide by mixing water, oil and powdered derris root. Fawcett (U. S. Pat. 2,096,678) obtains rotenone from derris by distillation in a very high vacuum.

Synthetics

W. H. Tisdale (Soap XIII 7: 97-100, July, 1937) discussed recent progress in the development of insecticides and disinfectants with particular reference to new synthetics. D. F. Murphy (Soap XIII 2: 96-98) reported Lethane 384 (a 50 per cent solution in kerosene of n-butyl carbitol thiocynate) 1/80 as toxic as nicotine to warm blooded animals. The Grasselli Chemical Co. (British Pat. No. 464,776) has patented fly spray compositions consisting of kerosene solutions or aqueous emulsions of decyl thiocyanate.

Bindler (U. S. Pat. 2,070,350-1-2-3) prepares mothproofing materials by condensing isatin-5-sulfonic acid or its derivatives with derivatives of phenol, for example, p-chlorophenol. Kilgore (U. S. Pat. 2,070,-603) claims mesityl oxide oxalate methyl ester enol isomer and related synthetic esters to which pyrethrum extract or rotenone may be added as an insecticide and insect repellent. Remy (U. S. Pat. 2,078,458) prepares a mothproofing emulsion comprising aluminum naphthenate, amyl acetate, water, and triethanolamine oleate. Stottler and Herrmann (U. S. Patent 2,082,188) employ organic quaternary phosphonium bases and other organic compounds in mothproofing solutions. Landers (U. S. Pat. 2,091,075) makes a mothproofing solution from sodium fluoride, "Nekal," and other ingredients. Chesnutt (U. S. Pat. 2,095,464) prepares free-flowing sodium fluoride by mixing it with soap solution and drying.

Derris versus Cube

(*From Page* 113)

whereas other insects appear equally susceptible to derris and cube.

The apparent superiority of derris over cube may be due to its finer particle size and to a higher rotenone content than is shown by analysis.

All derris powder sold in the United States is domestically milled, whereas about one-half the cube is ground abroad. Exact comparisons are lacking, but it is believed that powders ground in the United States are in general finer than those ground abroad.

The rotenone in many samples of derris is difficult to extract, whereas the rotenone in cube is readily extracted. If a sample of derris contains more rotenone than is revealed by the methods of analysis heretofore used, it will show to advantage when compared with a sample of cube of supposedly equal rotenone content.

Additional tests with accurately analyzed cube and derris of the same particle size must be made against a number of species of insects before a final conclusion can be drawn as to their relative values.

From information now available, any insecticidal superiority of derris over cube is more than offset by the present difference in price, which is 11 or 12 cents per pound. One hundred and thirty-two pounds of powdered cube can be purchased for the price of 100 pounds of powdered derris of the same (5 per cent) rotenone content. Moreover, the principal agricultural insect pests against which rotenone is used, such as the Mexican bean beetle, the pea aphid, and three species of cabbage worms, are as readily controlled by cube as by derris of equal rotenone content. At present prices more economical control of those insects susceptible to rotenone can be secured with cube than with derris.

Advances in Disinfectants

(*From Page* 110)

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(71) J. C. Varley, Soap 13, No. 4 (1937).

Rotenone Production

Rotenone preparations are produced by subjecting a natural rotenone-containing substance to distillation without ebullition at a pressure of 10^{-2} to 10^{-6} mm. of mercury and collecting the distillate. The natural substance such as derris roots may be dried and ground, and mixed before distillation with a carrier liquid that is substantially volatile at 120-170° C. and 10^{-4} mm. of mercury. Imperial Chemical Industries Ltd. Canadian Patent No. 369,499.

Disinfectant Literature and Patents

By B. G. Philbrick*

Skinner & Sherman, Inc.

RECENT disinfectant literature has dealt mainly with the results obtained with specific products rather than with the method of test. Interest, however still persists in the resistance of Staphylococcus aureus as used in the F.D.A. and National Formulary tests.

Vicher, Meyers, and Gathercoal (1) report on a study of the phenol resistance of fourteen oral and five stock strains of Staphylococcus aureus, using the F.D.A. method of test. The stock strains included four from the American Type Culture collection and No. 209 of the F.D.A. secured from Reddish. Of the cultures of oral origin only one gave the required F.D.A. method resistance, and eight were killed by 1:90 phenol in five minutes; of the stock cultures, one failed to give any tests up to the F.D.A. standard, two gave the standard in 20 per cent of the cases, one in 36 per cent of the tests, and the fifth in 60 per cent of the cases. With the National Formulary standard, however, which requires killing in 1:80 dilution but survival in 1:90 in ten minutes of exposure; of the stock cultures, one met the requirements in 40 per cent of the cases, one in 45 per cent, and three in 80 per cent. Of the oral only two of the fourteen met the N. F. standard.

While the phenol coefficient method of test has been generally adopted in this country, it is interesting to note that the suspension method of test still has its advocates elsewhere. Hanne (2) reports tests made by this latter method and calls attention to E. coli as a suitable test organism when used in conjunction with other organisms.

Reports upon specific compounds are quite abundant in the current literature. Dunn (3) and Heineman (4) report independently upon a new type of antiseptic, a mixture of high molecular alkyl-dimethyl-benzyl-ammonium chlorides of the chemical formula $C_6H_5CH_2N_1(CH_3)_2\ R_1Cl$ in which R represents a mixture of alkyl radicals between $C_8H_{17}O$ and $C_{18}\ H_{37}$, derived from the fatty acids of cocoanut oil. Both authors report high values against several bacterial and fungicidal test organisms, both in the presence and absence of horse serum. Bacteriostatic tests are included in each report, while that by Heineman includes also agar cup tests to determine penetration, and tests of the alcoholic solution upon the skin.

Dunn (5) also reports upon the fungicidal properties of secamyltricresol-o-hydroxyphenyl mercuric chloride and a mixture of the two. The two compounds separately and in mixture were effective against all the test organisms used namely, Trichophyton interdigitale, Microsporon audouini and Monila indicans. A 1 per cent tincture of secamyltricresol was the most effective.

Goedrich (6) describes a new iodine-bile compound, iodocholeate, soluble in water and alcohol, more germicidal than tincture of iodine or Lugols solution, but less destructive to the tissue.

Hurd and McNamee (7) have reported on a series of alkyl resorcinols which include the hexenyl, dihexanyl, pentenyl, and heptenyl derivatives. All of these products possess significant phenol coefficients against Staph. aureus, E. typhi, and Strep. hemolyticus.

In the field of mercury compounds McClesky and Swingle (8) have reported on comparative results obtained with sec-amyl tricresol, o-hydroxyphenol mercuric chloride and other mercurials and proprietary phenolic compounds against five different types of organisms. Attention is called to the effect of formulation by blood plasma and the type of organism used.

Lockeman and Ulrich (9) have shown that a preparation containing the silver of a hydroxy benzylidine derivative is strongly bactericidal against the E. typhi group of organisms.

Prout and MacStrickland (10), using the agar plate and agar cup plate, tested the antiseptic action of ointments made up with a series of different fatty and non-fatty bases. The tests showed that antiseptics combined with fatty bases such as wool fat, hydrogenated fats, etc. showed greater bacteriostatic properties than when combined with non-fatty bases. In the non-fatty group white petrolatum was found to be better than petrolatum. Phenol, boric acid, chrysorobin, calamine, sulphur, and zinc oxide showed no bacteriostatic properties when combined with the bases employed. The agar cup plate test was found to give a more even zone of inhibition than the agar-plate.

Bryan (11) reports on the evaluation of ointments using a

* Report of Committee on Disinfectant Literature and Patents before 24th annual meeting, Natl. Assn. of Insecticide & Disinfectant Mfrs., New York, Dec., 1937.

modified cup technique and taking 1 per cent phenol as the standard for comparison. Britt (12) reports that the N.F.-VI Calomel ointment is not as effective as the N.F.-V. preparation.

The industrial use of disinfectants is taken up by Ashby, Hedges, and Gibbons (13) in a study of the use of germicides and fumigants in the baking industry to overcome "ropiness" in bread. Formaldehyde was found to be a very effective fumigant and hypochlorites were effective in spray from where there was no danger of corrosion. Along the same lines Epstein (14) reports tests made with paints containing 4 per cent halogenated oil. They are shown to have an antiseptic or inhibitory action after application to surfaces. This inhibitory power is present not only directly after application but persists for at least several months. The test organisms used were E. typhi, Staphylococcus aureus, yeasts and molds.

Patents

Mercurials: Anderson (15-20) in a series of patents covers a wide range of phenyl mercury compounds which are stated to possess high germicidal properties but to be low in toxicity. These compounds include combinations of the phenyl mercuric radical with various benzene carboxylic acids, aryl, alkyl acids, heterocyclic bases, various imines and imides, both aromatic and heterocyclic. According to their class they are suitable for use in mouthwashes, soaps, etc. and in therapeutics.

Phenolic Compounds: Stockelbach (21) prepares a germicide from a tertiary alcohol such as tertiary butyl alcohol and a mixture of phenols derived from coal tar, preferably by heating with zinc chloride. Klarmann (22) claims a compound containing p-tertiary-butyl-phenol or one of its alkyl substituted derivatives such as p-tertiary-butyl m-cresol, which together with chloro-cresol or other phenolic compound is suitable for use in dilute aqueous solutions or may be used in soaps.

Methods are described for the preparation of various substituted diphenyls in patents issued to Harris (23) and Jenkins (24) (25). Britton, Coleman, and Mills (26, 27) describe alkyl-chloro and alkyl-bromo-hydroxy-diphenyls. Raizess and Clemence (28) add substituted butyl cresols to their previous preparations.

Miscellaneous

In patents issued to Taub, Leuchs, and Hahl (29, 30, 31) methods are given for the preparation of a series of quarternary ammonium compounds. A disinfectant and fungicidal preparation has been patented (32) in which the active ingredient is dodecyl benzyl methyl sulfonium methosulfate. The preparation is claimed to be effective in the disinfection of proteins and in ointment preparations with a petrolatum base. The use of oxides of silver and manganese preferably as silver manganate as germicides is described in British Patents (33). Silica gel, cellulose, etc. can be impregnated with the compounds and after pulverizing the powder can be used as germicidal powder or added to emulsions, salves, etc. to render them antiseptic.

References

1. Vicher, Meyer, and Gathercoal.—J. Am. Pharm. Assoc. 26.7. 590-593.
2. Hanne.—Pharm. Ztg. 82. 464-470.
3. Dunn.—Am. J. Hygiene. 26.1. 46-52.
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31. Taub, Hahl, & Leuchs.—U. S. Pat. 2,087,132.
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Mothproofing Problems

(*From Page* 105)

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Rotenone Determination

When the crude rotenone-carbon tetrachloride complex obtained is triturated with ethyl alcohol, the amount of rotenone recovered is stated to be 6 per cent low owing to loss of rotenone in the alcohol, as determined polarimetrically. C. D. V. Georgi and G. L. Teik. *Malayan Agr. J.* 25. 23 (1937).

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Insecticide Progress in 1937

By Harold Thomas*

Shell Petroleum Co.

THAT the consuming and reselling public are appreciative and in accord with the preparatory work carried on by the National Association of Insecticide and Disinfectant Manufacturers, relative to the formulation of more accurate testing and grading procedure can be attested, first, by the favorable reaction of the majority of our own members who are not in committee work, and secondly, by the favorable comments of large buyers and independent manufacturers who are not members of this association.

Only recently did your Chairman of the Insecticide Committee General discuss the above program with an official of one of the large major oil companies located in California. His comments to the outline of our program for more modern testing and evaluation of sprays was to the effect that he, personally, was of the opinion that our stand was well taken and that, further, he would pass on the information presented him to the California Insecticide Association.

At the September Board of Governors' meeting, the writer recommended to the board that plans be developed for more closely coordinating the two associations, and to take steps to avoid any confusion which may result from the two associations working at cross-purposes in dealing with Federal and State insecticide regulations. Originally, due to insecticide manufacturing operations being confined to the area east of the Mississippi River and west of the Rocky Mountains, the industry was divided into these groups on a geographical basis. However, the various states are now more rapidly adopting insecticide regulations so that again the interests of all the manufacturers become as one, and both associations must recognize this fact and take the necessary steps to coordinate the work of the two associations. This will enable them to distribute the necessary educational data to the various State and Federal bodies apprising them of the improvements and functions of modern insecticides.

To insure closer cooperation, it is advisable to consider readjustment of our convention schedule, and to consider the holding of the semi-annual June meeting at a more central location such as Kansas City, so as to permit both association bodies to attend this meeting. It is recommended that a resolution be passed inviting the California association to hold a joint meeting with this association next June, and to delegate to the secretary the responsibility for making the necessary arrangements, including date and town agreeable to both associations.

Because of the pressing need for immediate official consideration of the many problems coming before the various committees in the association, it is deemed advisable to hold future Board of Governors' meetings at the time of annual and semi-annual meetings of the association, and preferably a day or so prior as well as a day after such meeting dates. This procedure would guarantee a more complete attendance at each board meeting, as it would preclude the necessity of members being absent from their business except at the time of the convention, and make for a more complete administration of the voluminous problems coming before the association. In conclusion, it should be remembered that such a procedure would permit the board meeting, as often as necessary throughout the period of the convention and when the problems are intricate, permit full consideration supported by committee findings.

Specifications for Fly Sprays

Recently a draft of the Insecticide General Specifications and Grade Classifications, along with an introductory statement explaining their purpose, was submitted to the entire roster of members of this association. The specification and grade classification was adopted and approved at the June semi-annual convention held in Chicago, and the foreword was submitted at the September Board of Governors' meeting by the Chairman of the Insecticide Committee General, who collaborated with the testing committee in its preparation. After its review by the Board of Governors' unanimous approval was voted and instructions given the secretary, that this document be printed and distributed to the membership for review and report at the December convention.

Advance distribution was made in order to permit the full membership to acquaint themselves with the specifications, and to permit the test-

* Report, General Insecticide Committee, 24th annual meeting, Natl. Assn. of Insecticide & Disinfectant Mfrs., New York, Dec., 1937.

ing committee time to investigate one or two minor points that would further increase the accuracy of the test methods. Subsequent report of the testing committee indicates that these points will not change the significance of the specification as now written in any way, and it was recommended that the completed draft be issued as written. However, the investigation carried on by the testing committee showed that the minor modifications would materially improve the test accuracy and the Chairman of the Insecticide Committee General will recommend to the Board of Governors that the draft be published and distributed as originally planned.

Commercial Standards

As previously discussed in the June report and its predecessors, it has long been the hope of the association to obtain the sanction and services of the Federal Government in controlling the quality of insecticides offered to the trade. It was first thought that by placing the association grade on the container label, the Food and Drug Administration could then assist the association. It now develops that another arm of the government is also available to us, namely, the Commercial Standards Division of the U. S. Bureau of Standards. This can be achieved by presenting the association's specifications, including the grading system, to the Commercial Standard. Such a procedure would require the insecticide to be labeled by grade and give an official standing to the Association specifications, so that the Food and Drug group could use the commercial standard specifications as well as the Insecticidal Act as a guide in policing shipments.

This procedure would permit us to urge all government bodies such as the procurement division, Veterans' Administration, etc., who now submit individual specifications for government deliveries, to abide by the recognized standards. This will minimize the existing confusion that now exists when members are quoting on various government bids.

It is generally considered that the above agencies tie-in with the association would consequently react favorably in the minds of the consuming and reselling public, and ultimately result in insecticide manufacturers obtaining a better market for their products.

In concluding this discussion, I wish as a Chairman of The Insecticide Committee General, to make a formal motion that the insecticide specification and grading system be presented by the association to the Commercial Standards Division of the U. S. Bureau of Standards, with the request that it be promulgated as a commercial standard.

Hotel Sanitation

(*From Page* 116)

eral, especially the recesses in the bed-ends where the side rails are attached, as well as all the surfaces of new mattresses and springs. However, the older mattresses and springs are sent to the incinerator room and burned, and as there is no wall paper in our guest rooms and the carpets are scrubbed regularly, the chance for any breeding of these pests is negligible.

Ants are another thing which we do not have, as there is no place in a fire-proof building for them to breed and the exterminator eliminates them automatically in his rounds, if they should come in on food and produce.

Roaches, while our biggest problem, compared to other forms of insect life, are really not a problem, as with our exterminating setup, they are kept down to what I might call an irreducible minimum. We employ an outside exterminating contractor, who visits the Hotel daily, and spreads insect powder around the employees' locker rooms; also kitchens, bakeries, and other places where food is handled. This exterminating system is also applied to locations where roaches or other vermin might breed if not treated in this manner. In addition, the Steward and Housekeeper have spray guns, and any roaches that happen to be noticed are promptly exterminated between times by our own help. We have found that by keeping our elevator shafts and pits clean, especially those handling food, and also keeping the Receiving Department, where the goods are brought in, in first-class sanitary condition, that the problem of roach control is fairly simple.

Every forward looking manufacturer can better his own standing with his customer by really studying the customer's problem and making recommendations as to the elimination of cracks, holes, loose tile, etc., even though such recommendations may appear to lessen his chance of doing business. You must bear in mind that every Hotel is in constant danger of both rodent and insect infestation, so that the generous use of your products as safeguards is always a necessity. Of course, the use of disinfectants and deodorizing materials goes without saying, and we could not hope to keep our Hotels habitable without their daily use.

Windshield Cleaners

(*From Page* 25)

that could be used in this way might contain such ingredients as ammonia-water, ammonium soap, ammonium salts and amorphous silica in permanent suspension. The abrasive has to be so soft that it will not scratch glass, at least not to any serious degree. Amorphous silica, sold as Illinois silica, is much softer than hard-quartz silica. Silicas differ in properties and can not be bought on a price basis for this particular use. Amorphous silica should pass 99 per cent through a 325-mesh screen.

THERE are two kinds of solid cleaners, one of which is soap and the other essentially an abrasive. One soap product is put out in the form of a small cake mounted on a wooden block which serves as a means of handling the soap. The block is made with grooves in it and the soap molded on the block, the soap in the grooves holding the rest of the soap firmly attached. The soap itself is a high

titre soap which is unusually dry, since it contains only about 4 per cent moisture. The soap can be handled much like a blackboard eraser, and is rubbed over the glass after loose dirt has previously been wiped off. It can be rubbed on wet glass or dry glass. If rubbed on dry glass, it is simply polished afterward with a dry cloth, no water being used at any stage. Its chief function is evidently to prevent water-drop formation.

A somewhat similar product has been marketed in much the shape and size of a lipstick. This particular material is a mixture of soap and sulfonated oil and has the color of the latter ingredient. The stick is wrapped in tin foil at the base and is applied to glass surfaces like a piece of chalk. Its purpose is again to make water run off the windshield in a sheet instead of forming drops.

Powdered products are of the abrasive type. A well-known and very successful branded material for cleaning windows contains about 6 per cent of powdered soap and 94 per cent of feldspar. Powders are rubbed on with a wet cloth, and then rubbed off with a dry one. They are very efficient against bugs and other bits of solid dirt. Feldspar is the most desirable abrasive for use on glass. The soap present in this product is removed by the friction of the abrasive. Since it is applied moist, the soap aids in wetting out the dirt. A similar product to the above contains 2 per cent of powdered soap and 98 per cent of 200-mesh feldspar.

A proposed federal specification for a glass-cleaning powder suitable for use on cabin windows and aircraft windshields contains the following points:—The material shall be a fine uniform powder which will clean glass without scratching and without leaving any film. Alkaline salts shall not exceed 1 per cent, or free alkali 0.1 per cent. Insoluble siliceous material shall be not less than 88 per cent or more than 93 per cent and shall consist entirely of ground feldspar which will pass through a 100-mesh sieve, with a residue on a 200-mesh sieve not exceeding 5 per cent. Rosin, sugar and foreign matter shall not be present. Feldspar may be identified by means of the petrographic microscope.

CHARACTERISTIC of the packaging and marketing of windshield cleaners and some glass cleaners are the dispensing nozzles and spraying devices with which either glass bottles or cans are equipped. Several types of small spray pumps, attached to the containers when they leave the factory or included in the package to be attached by the user, find a wide application in windshield cleaner marketing. By spraying directly on the windshield, the proper quantity of cleaner may be applied directly to the surface to be cleaned, obviating waste and saving time. A light, even wetting of the surface may be secured by spraying which cannot be obtained by pouring the liquid on a cloth and applying. For garage use, the material is usually supplied in gallon cans, or larger, and small all-metal atomizers, capable of being refilled, are furnished with the material or sold separately.

In labelling, the manufacturer always tries to inject an individual note. A great majority always insist on being much too optimistic about what their product will do. One manufacturer calls his product an "instant" glass cleaner, and follows this up with the mild statement that "it's the world's fastest cleaner for glass." The product contains less than 25 per cent alcohol. A product containing 70 per cent alcohol advises several applications to remove dried bug juices, with brisk rubbing after each application. This sounds as though the producer of the article had actually tried his liquid and found that it was no joke to get the stains off with alcohol. A product containing less than 20 per cent alcohol and a trace of ammonia bears the claim that it "dissolves squashed bugs — the solvent action is very rapid." My advice to such a manufacturer is to put a fly, or an ant, or any other insect that he wishes to select, in a bottle of dilute alcohol, to see how long it will take for it to dissolve.

Directions for use constitute a helpful and informative addition to any package, no matter how obvious they may seem. Most people have acquired the habit of looking for directions, so that they feel disappointed if they are not there. Also they like to be sure they are doing the thing right. This is a type of response that the producer will do well to cultivate.

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Evaluation of Germicides

The determination of phenol coefficient is not an accurate basis for evaluation of disinfectants except under certain conditions. A more valuable expression for sterilization of living material would be based on a combination of the killing power of the disinfectant (A) with its toxic action toward living embryonic tissue (B). A/B is called the toxicity index. The smaller the index the more perfect is the germicide. Aqueous iodine is the best of all germicides studied. Of the newer organic preparations examined, hexylresorcinol gave the lowest index when tested against *Staphylococcus aureus*, and metaphen the lowest when tested against *E. typhosa*. A. J. Salle, W. A. McOmie and I. L. Schechtmetister. *J. Bact.* **34,** 267-73 (1937).

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Disinfectant Compositions

Disinfecting and bleaching compositions are made by adding salts of chloroamides of organic sulfonic acids to soap-like sulfonates of fatty bodies. Thus, the sodium salt of *p*-toluenesulfamide chloride is mixed with sodium lauryl sulfate. Deutsche Hydrierwerke A.-G. German Patent No. 648,869.

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Microscopic Rotenone Test

Rotenone crystallizes from alcohol as hexagonal plates. When impurities are present in the alcohol solution the edges of the plates are characteristically curled. In the presence of formaldehyde rotenone crystallizes as acicular arborescences. Emmanuel Pozzi-Escot. *Rev. cienc.* (*Peru*) **38,** No. 418, 63-4.

News.....

Merge Universal and Waxaid

Universal Chemical Co., and Waxaid Co., both of Baltimore, have been consolidated and the former will be operated as Universal Chemical, Division of Waxaid Co., 700 Druid-hill Ave. J. Hamburger, chairman of the firm's board, advises that Universal was not sold at auction as recently reported and that waxes, chemicals, soaps, emulsifiers, etc., will be sold as in the past.

Sanitary Distributors Meet

Harry Newman Tolles, head of the Sheldon School of Salesmanship, was the guest speaker at the December 20th meeting of the Affiliated Sanitary Supply Distributors of Chicago at the Harding Hotel, Chicago. The association is today in the strongest position since it was founded and is steadily widening its membership list. In the last two months membership applications from the nine companies have been approved.

Adds New Service

Carbatype Chemical Co., manufacturing chemists of Omaha, Nebr., have added a brokerage and marketing service to their business. The new division will be known as Baker & Baker. They are looking for lines of industrial chemicals, chemical specialties and by-products to represent in the Omaha territory.

Twi-Laq Chemical Moves

Twi-Laq Chemical Co., formerly at 25 North Portland Ave., Brooklyn, has moved to larger quarters at 221 Sullivan St. Arthur N. Wels is president and sole owner of the company.

Lacquerwax Appoints Agency

Lacquerwax Co., Hartford, Conn., manufacturer of liquid automobile wax and cleaner, has appointed James Thomas Chirurg Co., Boston, to direct its advertising.

Robbins Joins I. & D. Assn.

Geo. B. Robbins Disinfectant Co., Boston, has been elected to active membership in the National Association of Insecticide and Disinfectant Manufacturers. Guy P. Robbins is president of the firm.

Murray Joins McConnon & Co.

J. E. Murray, formerly with McLaughlin, Gormley King Co., Minneapolis, has joined H. G. McConnon & Co., Winona, Minn. He will work in the insecticide division of that organization.

Sanovan in Special Offer

Cosmos Chemical Corp., Boston, Mass., is featuring a special combination offer on "Sanovan", household deodorant. The combination consists of a four-ounce package of "Sanovan" deodorant and a package of "Sanovan" spray, 70-cent value, for 49 cents.

New Synthetic Insecticide

Kessler Chemical Corp., Philadelphia, has just introduced a new synthetic insecticide under the name "Kesscocide 95." The product is described chemically as alpha naphthyl isothiocyanate and is a white crystal, with a melting point of 55.5°C. and a boiling point of 142°C. at 6 mm. vacuum. It is very slightly soluble in water, but readily soluble in most organic solvents. It has a very slight pleasant odor, and insecticide solutions made with it are said to be odorless. According to the manufacturer it produces colorless solutions which do not stain. It is stated that a 1 per cent solution shows an effective kill on houseflies.

Werner of Sanco Dies

Fred J. Werner, for the past fifteen years associated with the sales department of the Sanco Products Co., Greenville, Ohio, died Nov. 29 at his home in Greenville, according to an announcement received from Louis Holzapfel, Sr., president of the company. Mr. Werner was widely known in the middle-west among the institutional trade because of his long association with the sale of sanitary specialties.

Insecticide Market Grows

Due to the tropical climate and a prevalence of certain kinds of insects, the cities of Panama and Colon offer an important, if rather limited market for household insecticides. Their use, according to recent reports, is growing. Some insecticides are prepared locally, with one manufacturer at present operating on a small scale in Panama City. Cattle dips are also made locally. Concentrates for their manufacture are brought in from abroad, usually in one- and five-gallon cans. Mosquito larvacide is likewise manufactured in the Republic of Panama and the Canal Zone.

To Register Disinfectants

Argentina has established requirements for the approval and registration by the National Department of Health, of disinfectants, deodorants, and insecticides offered for sale in Argentina.

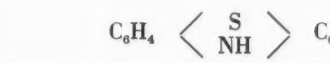
Criticize N. Y. Specifications

Attention is called to certain illogical requirements contained in the New York State specifications for germicide in a recent communication from Gordon W. Baird of Baird & McGuire, Inc., Holbrook, Mass. The following contradictions in the New York germicide specifications are referred to by Mr. Baird: "First of all let me point out just where I think the specifications contradict themselves and confuse. They state 'the ingredients should be of U.S.P. quality or better'; they then go on to say the germicide shall contain cresylic acid. Cresylic acid as we know it is not U.S.P. They stipulate the weight of the soap should be 6 per cent. How can this be soluble? In the third paragraph under 'Solution' they state 'it shall be formed without agitation'. How? Under the

caption 'Odor' they state 'shall not be perfumed'. Cresylic acid has a distinctive odor and no perfume will remove it. It will have a cresylic smell which is a good clean coal-tar odor. Possibly there are a few more contradictions in these specifications that I have overlooked. The point is, that manufacturers are placed in a rather peculiar position when customers ask for quotations based on such illogical specifications."

Phenothiazine as Insecticide

Recent experiments conducted by the U. S. Department of Agriculture indicate that phenothiazine holds considerable promise as a substitute for toxic materials as an insecticidal spray for fruits and vegetables. It is effective against a large number of insects, particularly the codling moth, and at the same time is harmless to humans. Its chemical formula is



and it is described as a combination of aniline oil and sulfur. It is commercially available through the Grasselli Division of E. I. duPont de Nemours & Co., Wilmington. One of the factors holding back its use at present is that no "sticker" has yet been developed to hold it on crops through rainstorms. This would be a less important consideration in the northwestern part of United States where summers are generally dry. At present levels it is twice as expensive as lead arsenate, but it is stated that only about half as much of the new material is necessary for effective spraying.

Buettner Plans Western Trip

The Board of Directors of the National Pest Control Association has approved plans for a trip by William O. Buettner, secretary, to attend meetings of various local groups of the association during January and the early part of February. The schedule calls for visits with the local associations and member firms of the industry in a number of cities in middle western and southern states.

R. J. Prentiss & Co. Expand

Richard Prentiss, head of R. J. Prentiss & Co., New York, has just announced the purchase of the pyrethrum and insecticide division of Sherwood Petroleum Co., Brooklyn, N. Y., including plant, inventory, equipment, unfilled contracts and good will. Sherwood will retire from the pyrethrum field, but will continue to refine and sell "Spraysene," its deodorized insecticide base. The Sherwood pyrethrum extract plant will be consolidated with present facilities of R. J. Prentiss & Co., allowing them to expand their output considerably. Sherwood Petroleum Co. has built up a substantial business in the pyrethrum and insecticide field over recent years in the sale of pyrethrum, concentrates and insecticide specialties, as well as their deodorized insecticide base. William F. Kroneman, who has been in charge of the Sherwood pyrethrum and insecticide division, will join R. J. Prentiss & Co., by mutual agreement with Sherwood, in charge of pyrethrum concentrate sales.

Penick & Co. to Move Plant

As the first step in a program of expansion, S. B. Penick & Co., New York, have announced the purchase of 10 acres of land at Lyndhurst, N. J., for manufacturing operations. As soon as alterations have been made on the new property, on which are ten one-story fireproof, brick and concrete buildings, and equipment installed, the manufacture of all extracts, insecticides, alkaloids, and other products of the firm will be concentrated there. Within a short time the company also expect to announce the relocation of their main plant. The broad expansion program comes as a result of the fire which last September destroyed all but one of the 15 buildings of the Penick plant at Weehawken, N. J. The Lyndhurst property is situated on the Delaware, Lackawanna & Western railroad, 9 miles from New York. S. B. Penick & Co. maintain warehouses and milling facilities in Chicago, collection and plant facilities at Asheville, N. C., and warehouses at Roan Mountain, Tenn.

Stevenson Returning to Detroit

Ralph M. Stevenson, sales manager of Givaudan-Delawanna, Inc., New York, for the past two years, will return to Detroit about Feb. 1 on a leave of absence. Prior to coming east he operated his own manufacturers' agency business at 2457 Woodward Ave., Detroit, and in the future will spend part of his time with his own concern. During his absence the business has been under the charge of his son. The Stevenson firm acts as representative in Michigan and northern Ohio for R. J. Prentiss & Co., New York, insecticidal raw materials, Givaudan-Delawanna, Inc., New York, perfuming materials, and White Metal Manufacturing Co., Hoboken, collapsible tubes. A new agency has just been obtained for Pennsylvania Refining Co., Butler, Pa., deodorized insecticide base and white oils. Mr. Stevenson plans a further increase in his line and will carry warehouse stocks of some materials for local distribution. Other non-conflicting agencies in the chemical line may shortly be added.

New Bulletins

(*From Page* 73)

placed. The table turns readily, it is claimed, and the stem control levers are easy to raise and lower. Metal construction is used throughout.

431—New House Magazine

Magnus, Mabee and Reynard, Inc., New York, have begun publication of a new house magazine, *The Drum Key*, containing historical information about the use of soaps, cosmetics and perfumes, and items of general interest. Copies are available on request.

432—Jobbers' Price List

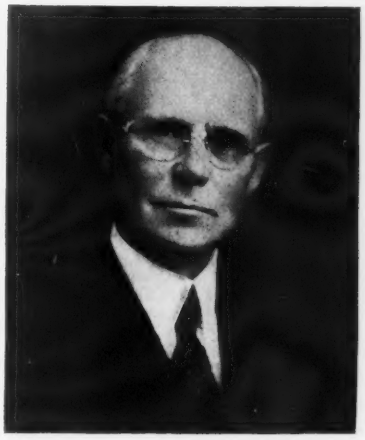
Elkay Products Corp., New York, has just issued a price list of "Elkay" sanitary chemicals and accessories. Copies are available on request.

Rochester Germicide Co. Marks 50th Anniversary

PLANS were laid for the celebration this year of the 50th anniversary of the founding of Rochester Germicide Co., Rochester, N. Y., at a conference of the company's branch managers, held at that city, Dec. 28 to 30. In an effort to make 1938 a banner year, sales contests, additions to the sales personnel, additions to the present line of products, and a greater sales territory were discussed at the conference. Announcement was also made of an anniversary catalog, to be issued shortly. A banquet was held on the second day of the conference, attended by all of the company's executives and sales representatives from the Rochester territory as well as the branch managers. D. N. Calkins, founder of the firm, was presented with a volume of parchment sheets signed by each employe, and an engraved sterling silver fruit bowl.

Rochester Germicide Co. was founded in 1888, in the back rooms of an old house in Rochester. The total capitalization was $1000, part of which was furnished by C. P. Crowell, although it was not until 1915 that Mr. Crowell was actively associated with the business. Mr. Calkins was manufacturer, salesman, bookkeeper, credit man, and service man. At the end of the first year a salesman, a stenographer, and a service man were added. In that year, the total volume of business was $3000. In a few years the firm moved to larger quarters in an old blacksmith shop.

About 1910 the company began to expand in a big way, and branches were opened in various cities. Today the company maintains seven branch offices. Together with the managers in charge, they are located as follows: Cleveland, H. V. Ebert, manager; St. Paul and Minneapolis, H. F. Wittmaack, manager; New York, J. A. Walsh, manager; Pittsburgh, R. W. Uhlman, manager; Chicago,



D. N. Calkins

W. G. Novesky, manager; Boston, H. W. Drury, manager. H. G. Provost is sales manager for the Rochester district, and J. A. Parsons, sales manager for eastern Pennsylvania. At one time a Canadian branch was opened in Toronto, but this was later changed over to a completely separate company, with Canadian personnel and stockholders, though there are at present some American stockholders in common with Rochester Germicide.

C. P. Crowell joined the company in 1915, as vice-president and purchasing agent, the position he holds today. The present general manager, W. B. Eddy, came with the company in 1918, as assistant chemist. In 1920, W. S. Calkins was added to the staff. He is now the treasurer. C. W. Crowell joined as chemist and production superintendent in 1922, and has since been made a vice-president. All the above serve on the board of directors.

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A letter received by the editors of *Soap* from R. C. Treatt & Co., London, sole selling agents in Europe and America for the Kenya Pyrethrum Board, questions the accuracy of a statement in the December 1937 issue of *Soap* with reference to the pyrethrins content of Kenya Flowers. The statement was made in the article that arrivals this year have been running in the vicinity of 1.25 per cent pyrethrins. R. C. Treatt & Co. advise that "since the beginning of April this year Kenya Flowers have been sold with a guaranteed minimum content of 1.3 per cent total pyrethrins and so far we have not had a complaint of any of the shipments so guaranteed. In fact many have tested appreciably higher than this figure.

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Charles O. Homan, for the past thirty years associated with the Dodge & Olcott Co., New York, was appointed manager of sales for that company effective Jan. 1, 1938. Of his thirty years with D. & O, Mr. Homan has spent the last 20 in sales work, being widely known in the trade in New York, the Middle-West, and Canada. He started his career with D. & O. in 1908 as a mail clerk and worked up through various departments of the business. In their announcement of the appointment of Mr. Homan, D. & O. stated: "With his extensive knowledge of essential oils and perfuming materials, and his contacts in all parts of the country, and his likable personality, his coworkers at Dodge & Olcott Co. have pledged him 100 per cent cooperation and support."

—♦—

Sherwin-Williams Co., Cleveland, has recently announced two new fume-resisting paints for industrial use. It is reported that by use of these paints, superior resistance is obtained to moisture, heat, and fumes, —thus lowering plant maintenance costs. Further particulars available.

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Instead of the regular monthly meeting of the Professional Exterminators Association in December, an open house gathering was substituted the afternoon of December 18. Notices will be mailed shortly regarding the January meeting.

Hold 16th Annual Chemical Show—Exhibits by 300 Companies

HUNDREDS of new industrial products and manufacturing processes were displayed at the 16th Exposition of Chemical Industries, held during the week of Dec. 6 to 11, at the Grand Central Palace, New York. The exhibits filled the three floors of the Palace, with nearly 300 companies represented. Attendance was estimated at over 40,000. The theme note of the Exposition, which is held every two years, was the new slogan "Chemical Research Creates Industries." In line with that slogan, the following were typical of the many interesting and attractive exhibits displayed:

Ertel Engineering Corp., New York. George A. Harkins was in charge of the booth. Ertel's complete line of glass-lined filters, stainless steel tanks, and bottle fillers was displayed.

Hercules Powder Co., Wilmington, Del. Special features of this booth included Viscosity tests of solutions of cellulose derivatives, tests illustrating the brightness of various grades of Hercules rosin, laboratory tests given paints, a test demonstrating the stiffness of textiles, and a test showing the flexibility of Hercules ethyl cellulose.

Pease Laboratories, New York. A. Lloyd Taylor was in charge of the booth. Samples were shown illustrating the use of Pease research and advisory service to clients.

Philadelphia Quartz Co., Philadelphia. Dr. William Stericker, W. H. Buxton, and J. W. Wichterman were in charge of the booth. Samples of different grades of silicate of soda and "Metso" detergent were exhibited.

Proctor & Schwartz, Inc., Philadelphia. A. L. Blank was in charge of the booth. A dryer with oscillating type feed, a reversing pan dryer, and laboratory, truck, and tray dryers were exhibited.

Foster D. Snell, Inc., Brooklyn. Dr. Snell was in charge of the booth. A demonstration of the waterproofing quality of basic aluminum acetate was featured.

Stokes & Smith Co., Philadelphia. L. G. Smith, C. E. Schaeffer, and William Sanford were in charge of the booth. The "Universal" filler was featured. Also shown was an assortment of products filled by the Stokes & Smith equipment.

Wilson & Bennet Mfg. Co., Chicago. J. Gossett was in charge of the booth, exhibiting the company's complete line of steel pails, drums, and barrels.

Industrial Chemical Sales Co., New York. H. L. Laughlin, T. G. Leek, A. T. Cirino, and E. B. Chaffey were in charge of the display. Fatty acid and pine tree products, featuring "Indusoil", "Liqro" and "Nuchar" were exhibited.

International Nickel Co., New York. E. A. Turner was in charge, featuring monel and nickel applications for industrial use. Castings, flexible tubing, and a monel covered steel roll were shown. Samples of "Inconel" and nickel clad steel were also exhibited.

Niagara Alkali Co., New York. J. E. Ferris, D. J. Orcutt, and T. C. Keeling were in charge of the booth. Samples of carbonate of potash, caustic soda, liquid chlorine, para, and caustic potash were displayed on a revolving table.

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St. Louis Pest Assn. Formed

In a move to organize the pest control companies of St. Louis into a single association, the St. Louis Pest Control Association has been formed, with the following officers and board of directors: H. H. Cassilly, City Fumigating Co., president; Roy Allison, Abar Exterminating Co., vice-president; James C. Walker, Acme Exterminating Co., secretary-treasurer; and William E. Martin, Bug Death Exterminating Co., W. F. Exner, Termite Control Co., Gerald Clem, Rose Exterminating Co.; and Donald P. Moses, West Disinfecting Co., directors. Guidance in coordinating activities of the local and national associations will be given by Thomas G. Raley and Charles Denny, National Pest Control Association directors. Control of misleading advertising and unethical sales practices was discussed at recent meetings of the St. Louis association.

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Floor Wax Makers Meet

At a meeting of the National Association of Floor Wax Manufacturers held in the Hotel Biltmore, New York, December 8, an advisory committee was named to assist the present temporary officers of the group to complete organization plans. Members of this committee will include Jacob Kahn, Windsor Wax Co., New York, chairman, V. L. Sinisi, A. C. Horn Co., L. I. City, N. Y., A. Wells, Twin City Shellac Co., Brooklyn, L. Kornicker, Uncle Sam Chemical Co., New York, and J. E. Saal, Vestal Chemical Laboratories, New York. Leo Lowenstein of D. A. Collins Mfg. Co., Brooklyn, will continue to act as temporary chairman of the group and has been empowered to appoint such additional committees as may be needed. Membership fee in the new organization has been fixed at $25.

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Penick Appoints Gilruth

S. B. Penick & Co., New York, insecticide raw materials, have announced the appointment of Donald Gilruth as manager of their foreign trade department. Mr. Gilruth, a native of Scotland, has a long record of experience in foreign trade. He has lived and traveled in the Orient, Europe, Africa, Australia, New Zealand, and the Latin Americas.

To Hold Pest Control Conference At Purdue University Jan. 17-21

THE second annual conference for Pest Control Operators will be held at Purdue University, Lafayette, Ind., January 17-21, under the supervision of Prof. J. J. Davis, head of the Department of Entomology of Purdue University, and in cooperation with the National Pest Control Association. The scope of the conference has been widened this year and much additional material which was not offered last year will be covered. The conference is open only to established pest control operators on payment of a registration fee of $2.00. Those planning to attend must fill out and mail questionnaires to Prof. Davis so that provision may be made to supply them with the necessary outlines with which to follow the five-day course.

The clinics will be a special feature of the conference and will take up problems relating to termites, ants, cockroaches, bedbugs, fleas, silverfish, booklice, rats, etc. In connection with the termite control clinic there may be some field work involving demonstrations of shielding and use of chemicals. The evenings will be given over to a series of informal discussions and a limited social program. The group will attend a basketball game the first evening, between Purdue and Northwestern, for which tickets must be reserved in advance. An informal banquet will be held the evening of January 20 which will be addressed by Dr. Edward Elliot, president of Purdue University. At this dinner the judges will announce the winner of the contest being conducted by Charles Opitz of John Opitz, Inc., New York, to select a new name to replace the word "exterminator."

The tentative program for the conference has been announced as follows by Prof. Davis:

SECOND
PEST CONTROL OPERATORS
CONFERENCE

January 17-21, 1938
PURDUE UNIVERSITY
Lafayette, Indiana

Monday—9:00-12:00 a.m.
Registration, Agricultural Bldg., Room 102.

1:30-4:00 p.m.—
Activities and Needs of the Pest Control Operator, J. J. Davis.
Reproduction and Development of Insects; How a knowledge applies to Controls.
Insect Structures, B. E. Montgomery.

Evening—
Basketball — Northwestern vs. Purdue. Tickets, $1.00.

Tuesday—9:00-12:00 a.m.
Principles of Insect Control, J. J. Davis.
Insecticide Appliances, G. E. Gould.
Sources of Information, G. E. Lehker.

10:00-12:00 a.m.—
Identification of Immature Stages of Household Insects for Advanced Group, H. O. Deay.

1:30-4:30 p.m.—
Chemistry of Insecticides, Introduction: Explanation of Chemical Terms and some Fundamentals of Chemistry, H. B. Haas and F. J. Allen.
The Chemistry and Physics of Soil Poisons, G. L. Hockenyos.
Pyrethrum, Derris, Rotenone and Other Plant Poisons and their Use in Household Insect Control, H. E. Whitmire.

Evening—
Window and Advertising Displays, H. W. Heine.

Wednesday—9:00-12:00 a.m.
Identification of Insects, H. O. Deay.

1:30-4:30 p.m.—
A History of Commercial Pest Control, H. E. Jennings.
Clinic—Carpet Beetles and Moth Proofing, E. A. Back and W. E. McCauley.

Evening—
Salesmanship, A. H. Monroe.

Thursday—9:00-12:00 a.m.
Clinic—Cockroaches, Fleas, Bedbugs, G. E. Gould, W. E. McCauley and C. Denny.

1:30-4:30 p.m.—
Cooperation between Pest Control Operators and Official Entomologists, Wm. O. Buettner.
Clinic—Rats and Mice; The Nation's Problem, G. C. Oderkirk and E. F. Sennewald.

Evening—
Banquet—President E. C. Elliott, Toastmaster.

Friday—9:00-12:00 a.m.
Clinic—Miscellaneous Problems, Including Stored Food Insects, J. J. Davis, E. A. Back, and H. K. Steckel.

1:30-4:30 p.m.—
Clinic — The Termite Problem, T. E. Snyder, Olive Falls, and G. L. Hockenyos.

1:30-4:30 p.m.—
Identification of Immature Stages of Household Insects, H. O. Deay.

Associated Exterminators Meet

A regular monthly meeting of the Associated Exterminators and Fumigators of New York was held at association headquarters, Dec. 16, at which sales practices and selling prices were discussed. The need for greater education with regard to cost analysis was emphasized, and plans were made for an open meeting of the industry early in January at which typical cost problems will be analyzed. A new code of ethics was adopted at the December meeting and it is expected that these rules will become the basis for a further agreement which will provide penalties for violations.

Federal Vermin Exterminating Co., New York, has moved to larger quarters at 55 W. 42nd St.

Omaha P.C.A. Convention City

The National Pest Control Association has announced that its sixth annual convention will be held at Hotel Fontennelli, Omaha, Nebraska, October 24-25-26, 1938. Consideration is being given to several new features as well as strengthening the essential parts of the program such as the clinics and general business problems confronting the firms

of the industry. The national committee is to be headed by Walter S. McCloud of Chicago, Ill. (510 No. Dearborn St.) who is to be assisted by Louis Kotler of Memphis, Tenn.; Lawrence A. McKenna of Cleveland; Charles W. Houghton of Boston; Captain D. B. Castle of San Francisco; William O. Buettner of Brooklyn; and Martin Meyer of Philadelphia. John Potts Linn of Omaha, Neb. heads the local Omaha committee and will soon announce the chairmen of the various local committees.

Dow Offers Preferred Shares

Dow Chemical Co., Midland, Mich., has offered to common stockholders of record Dec. 22, 30,308 shares of 5 per cent cumulative preferred stock, at $103 a share on the basis of 4 shares of preferred for each 125 shares of common held. Unsubscribed shares will be offered to the public at a price not less than the stockholder offering. Proceeds will be used for plant additions, working capital, and $538,100 for the purchase of 6 per cent preferred stock of Ethyl-Dow Chemical Co.

New England P.C.A. Meets

A meeting of the New England Pest Control Association was held in Boston last month. A program to eliminate useless listings in the classified telephone directory, and unethical copy in advertising was discussed. It was also decided that each member should pay the full amount of $10 association dues, rather than take advantage of the reduced rate.

Tropical Chemical Co. Moves

Tropical Chemical Co., sanitary supply house formerly at 705 W. Flagler St., Miami, Fla., has moved to 204 N. E. 2nd Ave., that city.

J. H. Higgins Moves

J. H. Higgins, sanitary supplier, formerly at 2160 N. W. 1st Ave., Miami, Fla., has moved to 2388 W. Flagler St., that city.

Warn on Salesman

Twi-Laq Chemical Co., Brooklyn, wax manufacturer, in a letter to SOAP, warns the trade against a salesman, Ed Weil, who has been representing them in Philadelphia was recently discharged. They report that this salesman cashed checks made out to the company, collected cash and did not turn it in, raised orders and otherwise swindled them. Information as to his present whereabouts would be appreciated.

I & D Registration List

(*From Page* 101)

Hercules Powder Co.
G. F. Hogg, J. B. Kennedy, George C. O'Brien, B. H. Little, Paul Mayfield, Friar Thompson, Jr.

H. D. Hudson Mfg. Co.
M. L. Harrison, Paul F. Loris, R. E. Streckenbach

Huntington Laboratories Inc.
J. L. Brenn

Industrial Chemical Laboratories
L. H. Mattson

Innis Speiden & Co.
Mr. Johnson

E. L. Jackson & Co.
E. L. Jackson

Kessler Chemical Corp.
W. W. Angus

Koppers Products Co.
James H. Carpenter

S. H. Kress & Co.
Dr. Valdimur Tuma

Lambert Pharmacal Co.
Dr. George F. Reddish

Lehn & Fink Products Corp.
Dr. Emil C. Klarmann

MacNair-Dorland Co.
Grant A. Dorland, W. E. Dorland, Ira P. MacNair, Richard Roley

Magnus, Mabee & Reynard Inc.
William F. Fischer, J. B. Magnus

McCormick & Co.
Dr. A. Edison Badertscher, John N. Curlett, L. W. Jones, Charles P. McCormick

McLaughlin, Gormley King Co.
G. A. McLaughlin, John W. Purcell

Merck & Co.
L. Stievater, Jr.

Midland Chemical Laboratories
Chester G. Filter, F. H. Kretschmer

Midway Chemical Co.
S. D. Benedict, G. A. Bowden, J. T. Hohnstine

Monsanto Chemical Co.
Frank E. Byrne, Clifford S. Heathcote

National Can Co.
William R. Janney, G. H. Morris, E. D. Murphy, R. S. Solinsky

Naugatuck Chemical Co.
Walter Horst

Niagara Alkali Co.
William J. Weed

O'Connor & Kremp
Joseph T. O'Connor, Joseph T. O'Connor, Jr.

John Opitz Inc.
Charles F. Opitz

Owens-Illinois Glass Co.
Smith Rairdon, Henry Blodgett

Owens-Illinois Can Co.
L. C. Bohs, J. W. Thayer

S. B. Penick & Co.
E. G. Allison, Dr. Thomas Lewis, Cady S. Corl, D. C. Beach, S. B. Penick, Jr., Harold Noble, Frederick F. Rauch

Pennsylvania Refining Co.
A. B. Weingard

Peterman Co.
Robert E. Spline

Phinotas Chemical Co.
P. J. Walsh

John Powell & Co.
Thomas S. D. Campbell, William J. Haude, David G. Hoyer, M. D. Leonard, John Powell, G. R. Rinke, E. B. Twyman, Dr. Alfred Weed

R. J. Prentiss & Co.
R. A. Bevernick, Harold R. King, Richard J. Prentiss, R. B. Stoddard

Reefer-Galler, Inc.
M. S. Galler

Reilly Tar & Chemical Co.
J. L. Tildsley, Jr., William Higburg, P. C. Reilly, Jr., W. B. Reinhart

Rex Research Corp.
J. E. Armstrong, H. W. Moburg

Geo. B. Robbins Disinfectant Co.
Paul L. Robbins, William J. Healy

Rochester Germicide Co.
Herbert W. Drury, W. S. Calkins, W. B. Eddy, J. A. Walsh

Rohm & Haas Co.
J. M. Graham, D. F. Murphy, M. J. Rolstad

Selig Co.
S. S. Selig

Sanitary Products & Paper Co.
A. L. Scharf

Shell Petroleum Corp.
Dr. Hugh R. Berry, J. R. O'Dea, Harold A. Thomas

Sherwood Petroleum Co.
William F. Kroneman, Victor L. Roberson, H. H. Sherwood

Sinclair Refining Co.
F. O. Huckins, N. J. Gothard, C. J. Dumas, E. F. McCanney

Skinner & Sherman Inc.
Burton G. Philbrick

L. Sonneborn Sons Inc.
E. E. Brand, William Bjork, G. C. Green Dr. Erich Meyer, F. J. Richter

Stanco Inc.
W. J. Zick, Franklin C. Nelson

Standard Container Inc.
G. S. King, William Martin Vogel
Standard Oil Co. of N. J.
Harry Velsor, A. S. Wade
Standard Oil Co. of Ohio
R. O. Cowin
Strahl & Pitsch
Herbert Baer
Sun Oil Co.
J. G. Sanders
Tanglefoot Co.
William J. Wagner
Tennessee Mineral Products
W. B. Donahue
Thorocide Chemical Corp.
Dr. H. E. Whitmire
J. A. Tumbler Laboratories
L. J. LaBrie
van Ameringen-Haebler Inc.
A. L. van Ameringen
Vestal Chemical Co.
F. J. Pollnow
Vick Chemical Co.
Dr. C. L. Black, G. N. Lowdon
J. R. Watkins Co.
F. R. Haigh, Dr. E. G. Thomssen
West Disinfecting Co.
R. M. Fort, Dr. William Dreyfus, J. R. Oppenheimer
Robert C. White Co.
Dr. Robert C. White, Robert C. White, Jr.
White Tar Co. of N. J.
H. W. Hamilton
Williams Sealing Corp.
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G. H. Wood & Co.
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Zonite Products Corp.
Dr. M. G. Minaeff, C. E. Entemann, Jr., John P. Greze, Jr., John H. Wright

Guests

Lee Bristol, Bristol-Myers Co., New York
William O. Buettner, Secretary, National Pest Control Association Inc.
Dr. F. L. Campbell, Professor Entomology, Ohio State University, Columbus, Ohio
Dr. Alvin J. Cox, Chief, Division of Chemistry, Department of Agriculture, Sacramento, Calif.
A. P. Federline, Association of American Soap & Glycerine Producers, New York
Dr. E. L. Griffin, Insecticide Division, Food and Drug Administration.
Dr. Lon A. Hawkins, Division of Control Investigations, Bureau of Entomology & Plant Quarantine
R. K. Hines, General Counsel, Vick Chemical Co., New York
Dr. Stroud Jordan, Department of Purchase, City of New York
Dr. T. G. Law, Canadian National Railway, Montreal, Canada
W. D. Lewis, National Hotel Management Co., New York
Robert R. Machmer, Bureau of Standards, Commonwealth of Pennsylvania, Harrisburgh, Pa.
Dr. E. R. McGovran, Bureau of Entomology & Plant Quarantine, Beltsville, Md.
Prof. W. C. McTavish, Chairman, Division of Chemistry, New York University
W. L. Myers, Sidney, N. Y.
F. W. Reynolds, Division of Trade Standards, National Bureau of Standards, U. S.
Dr. R. C. Roark, Insecticide Investigations, Bureau of Entomology & Plant Quarantine.
Frank S. Sheppard, Canadian Germicide Co., Toronto, Canada
Dr. N. Tischler, Kessler Chemical Corporation, Hoboken, N. J.
Arno Viehoever, Philadelphia College of Pharmacy and Science
Dr. Edwin F. Pike, Armour Laboratories, Chicago.
Ray Schlotterer, Secy. N. Y. Board of Trade-Drugs and Chemicals Div.
E. N. Woodbury, Ohio State University, Columbus, Ohio

New Patents

(*From Page* 71)

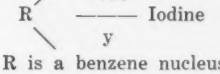
comprising continuously feeding in measured quantities separate streams of the oil and an alkali to a mixing zone, continuously advancing the oil and alkali while in intimate physical contact through the mixing zone to effect a thorough admixture thereof, in passing the mixture discharging from the mixing zone as a continuously advancing stream restricted in cross section through a continuous elongated passageway, in raising the temperature of the mixture during its passage through the elongated passage way to a degree sufficient to facilitate its subsequent centrifugal separation, and in subjecting the mixture discharging from the passageway to centrifugal separation to separate the refined oil from resulting sludge and residual solution.

No. 2,100,275, Refining Glyceride Oils, Patented November 23, 1937, by Benjamin Clayton, Sugarland, Tex., Walter Barnes Kerrick, Los Angeles, and Henry M. Stadt, Glendale, Calif., and Benjamin H. Thurman, Bronxville, N. Y., assignors, by direct and mesne assignments, to Refining, Inc., Reno, Nev. In the purification of glyceride oils containing free fatty acid and color impurities, a quick process comprising mixing small quantities of oil and a saponifying reagent for a brief period to form soap stock, heating the oil to a temperature which will cause the resulting mixture to be at an "emulsion breaking or opposing" temperature in excess of 100° F., prior to mixing the same with the saponifying reagent, whereby to rapidly condition the mixture of oil and soap stock for the step of centrifugally separating the soap stock from the oil, providing sufficient time for the soap stock to agglomerate with color impurities after the materials are contacted and during the passage of the mixture to the centrifugal separator and promptly subjecting the mixture of centrifugal separation for the separation of the soap stock and the agglomerated color impurities from the oil.

No. 2,100,276, Refining Glyceride Type Oils, Patented November 23, 1937, by Benjamin Clayton, Houston, Tex., assignor to Refining, Inc., Reno, Nev. A continuous process of refining glycreide type oil which comprises mixing an alkaline reagent with the oil to effect neutralization of the free fatty acids contained in the oil, continuously advancing the mixture through a zone where the heavier constituents are kept in dispersion in the oil and the remaining caustic acts upon the color to produce a proper bleach, maintaining the temperature of the mixture while passing through said zone to a relatively low degree and maintaining the mixture in the zone for a time sufficiently short to avoid excessive refining losses during the travel of the mixture but relatively long with respect to the time the mixture is later subjected to an elevated temperature, passing the mixture promptly to a centrifuge while abruptly subjecting it to an elevation of temperature during centrifugal separation.

No. 2,100,277, Refining Glyceride Oil, Patented November 23, 1937, by Benjamin Clayton, Houston, Tex., assignor to Refining, Inc., Reno, Nev. The method of continuously centrifugally separating soap stock from alkali treated glyceride oils, which comprises separating the soap stock from the oil by centrifugal force in a rotating centrifugal bowl, and discharging the oil and soap stock separately therefrom, applying heat to the material undergoing separation in an amount sufficient to maintain the temperature of the soap stock being discharged from the centrifugal from 120° F. to at least as high as 160° F., while preventing a substantial increase in the temperature of the oil during separation.

No. 2,100,493, Insecticide, Patented November 30, 1937 by Lloyd E. Smith and Houston V. Claborn, Washington, D. C., dedicated to the free use of the Public. An insecticide containing as its essential active ingredient a compound of the general formula



where R is a benzene nucleus and y represents hydrogen, an alkyl group, nitro group or iodine.

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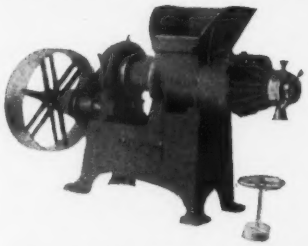
SINGLE SCREW SOAP PLODDER



Single screw soap plodders with 6, 8, 10 or 12 inch screws. All completely rebuilt and unconditionally guaranteed.

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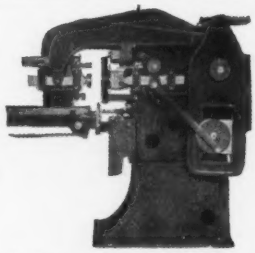
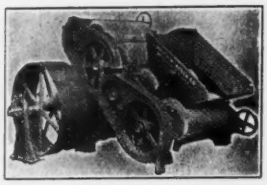


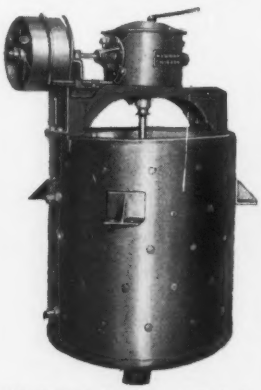
4 Jones Automatic combination laundry and toilet soap presses. All complete and in perfect condition.

H-A SOAP MILL



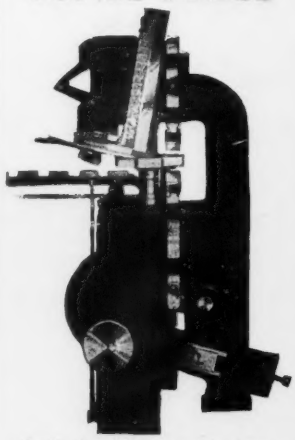
This 4-roll granite toilet soap mill is in A-1 shape. Latest and largest size rolls. Priced for quick sale.

New CRUTCHERS



This Newman brand new, all steel, steam jacketed, soap crutcher will crutch any kind of soap. We also build another crutcher especially adapted for laundry soap.

Automatic JONES PRESS



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